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ENVIRONMENTAL

ASSESSMENT

BIG SANDY ELK GAME FARM

MARCH 1999

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SUMMARY

ENVIRONMENTAL ASSESSMENT PROPOSED BIG SANDY ELK GAME FARM

INTRODUCTION

Montana Fish, Wildlife & Parks (FWP) is required to perform an environmental analysis in accordance with the Montana Environmental Policy Act (MEPA) for each proposal for projects, programs, legislation, and other major actions of state government significantly affecting the quality of the human environment (Administrative Rules of Montana [ARM] 12.2.430). FWP uses environmental assessments (EAs) in the game farm licensing process to identify and evaluate environmental impacts of a proposed game farm. EAs also determine whether the impacts would be significant and whether, as a consequence, FWP would perform a more detailed environmental impact statement (EIS).

When preparing an EA, FWP reviews environmental impacts of the Proposed Action, impacts of the No Action Alternative, and impacts of other alternative actions which include recommended and/or mandatory measures to mitigate the project's impacts. A mitigated EA includes alternatives with enforceable requirements (stipulations) which reduce impacts of the Proposed Action. The EA may also recommend a preferred alternative for the FWP decision maker.

This EA is prepared for a proposed game farm (Big Sandy Elk) near Havre, Montana. Based upon its review of the Big Sandy Elk Game Farm application, FWP has prepared a mitigated EA.

OBJECTIVES

This EA has been prepared to serve the following purposes in accordance with FWP MEPA rules (ARM 12.2.430):

- ensure that FWP uses natural and social sciences in planning and decision making;
- to be used in conjunction with other agency planning and decision-making procedures to make a determination regarding the Proposed Action;
- assist in the evaluation of reasonable alternatives and the development of conditions, stipulations, and modifications to the Proposed Action;
- determine the need to prepare an EIS through an initial evaluation and determination of the significance of impacts associated with the Proposed Action;
- ensure the fullest appropriate opportunity for public review and comment on the Proposed Action; and
- examine and document the effects of the Proposed Action on the quality of the human environment.

Introduction

The purpose of this study is to investigate the effects of various factors on the growth and development of the human brain. The study is designed to explore the relationship between environmental factors, such as nutrition and stress, and the structural and functional changes in the brain over time.

The study is divided into two main sections: a review of the literature and a description of the experimental methods. The literature review provides a comprehensive overview of the current state of knowledge in the field of brain development and the factors that influence it.

The experimental methods section describes the procedures used to collect and analyze data from the study. This includes the selection of participants, the design of the experiments, and the statistical methods used to interpret the results.

The results of the study are presented in the following section, which includes a detailed analysis of the data and a discussion of the findings. The results show that there are significant differences in brain development between the groups studied, and these differences are related to the factors investigated.

The conclusions of the study are summarized in the final section, which discusses the implications of the findings for future research and for the understanding of brain development. The study suggests that further research is needed to clarify the mechanisms underlying the effects of environmental factors on brain development.

The study is a contribution to the field of neuroscience and provides valuable insights into the complex process of brain development. The findings have important implications for the understanding of the factors that influence brain growth and the potential for intervention in cases of developmental delay or disorder.

The study is a testament to the power of scientific research in advancing our understanding of the human brain. The findings provide a foundation for further exploration of the factors that shape the brain and the potential for improving outcomes for individuals with developmental challenges.

PUBLIC PARTICIPATION

Public involvement in the EA process includes steps to identify and address public concerns. The Draft EA will be available for public review and comment from March 29, 1999 until 5 pm April 19, 1999 from the Region 6 FWP office. Comments regarding this EA should be submitted to FWP or at the public meeting at the locations specified below.

Mr. Tom Hinz
Fish, Wildlife and Parks, Region 6
Rural Route 1 - 4210
Glasgow, Montana 59230
Phone (406) 228-3700

PROPOSED ACTION AND ALTERNATIVES

PROPOSED ACTION

FWP received an application on December 8, 1998 from Kim and Cindy Kafka to construct the Big Sandy Elk Game Farm at a site approximately 6 miles southwest of Havre, Hill County, Montana. The Proposed Action consists of placing 40 adult elk (cows or bulls) on a 65-acre pasture (Figure 1). The site consists of level cropland overlooking the valley of Big Sandy Creek. The Kafkas live approximately 1 mile south of the site. The purpose of the game farm is to provide breeding stock, meat, and antlers. Occasional fee shooting of elk by the public is also proposed.

The applicants operate a 40-acre elk game farm 1 mile south of the site (Figure 2) (FWP Game Farm License No. 622) and a 1,145-acre elk shooting preserve 6 miles to the east (Diamond K Ranch Game Farm). The applicants have also proposed an 869 acre shooting preserve game farm (Diamond K Elk Enterprises Ranch 2) for elk, deer, and other game located immediately south and southwest of the proposed Big Sandy Elk game farm site. If excess bull elk remain at the end of December at the nearby shooting preserves, these elk would be transferred to the proposed game farm site for a three month period. These mature bull elk may be subjected to occasional harvest during winter. Bulls not harvested during the winter would be relocated back to the shooting preserve(s) in late March/early April. The proposed game farm would also be used to hold adult female elk and their calves on a year-long basis. The maximum number of elk proposed for the game farm would be 40.

The applicants would sell and dispose of domestic elk in accordance with Montana game farm and disease control requirements stipulated in Montana statute and administrative rules. Fence construction would be in accordance with requirements of FWP under ARM 12.6.1531. Fencing would consist of 8-foot high, 6-inch mesh game fence supported by wood or steel posts set at least 3 feet into the ground and not more than 24 feet apart. Corner and end posts would be braced. Two proposed exterior gates would be equipped with one latching and at least one locking device. Quarantine and handling facilities would be provided in accordance with DoL requirements.



Fig 1



Figure 2



ALTERNATIVES

One alternative (No Action Alternative) is evaluated in this EA. Under the No Action Alternative, FWP would not issue a license for the Big Sandy Elk Game Farm as proposed. Therefore, no game farm animals would be placed on the proposed site. Implementation of the No Action Alternative would not preclude other activities allowed under local, state and federal laws to take place at the game farm site.

PURPOSE AND NEED OF THE PROPOSED ACTION

The Big Sandy Elk Game Farm would be a private commercial enterprise that would provide breeding stock, meat, and antlers. Occasional fee shooting of elk by the public is also proposed. The game farm would be used to winter elk from the Diamond K Ranch Game Farm located approximately 10 miles south of Havre, Montana. Another proposed elk shooting preserve near the Big Sandy Elk Game Farm would also contribute bull elk.

ROLE OF FWP AND DEPARTMENT OF LIVESTOCK

FWP is the lead agency in preparing this EA for the proposed project. This document is written in accordance with the Montana Environmental Quality Council (EQC) MEPA Handbook and FWP statutory requirements for preparing an EA under Title 75, Chapter 1, Part 2 Montana Code Annotated (MCA) and FWP rules under ARM 12.2.428 et seq.

FWP shares regulatory responsibilities for new and expanding game farms with the Montana Department of Livestock (DoL). The DoL is responsible for regulating the health, transportation and identification of game farm animals. During the application process, all quarantine area plans and specifications are submitted to the DoL for approval and inspection of the proposed quarantine facility. No game farm licenses are issued without such approval and inspection.

AFFECTED ENVIRONMENT

The proposed Big Sandy Elk Game Farm is located on 65 acres approximately 6 miles west of Havre, Hill County, Montana. The site is surrounded by private property used predominantly for cropland and rangeland, with sparse rural housing (Figures 2 and 3). This section summarizes primary environmental resources in the project area.

LAND RESOURCES

The proposed Big Sandy Elk game farm is located 6 miles southwest of Havre, Montana in an area known as the Tiger Ridge Gas Field. The proposed game farm is on 65 acres of primarily dry crop land and prairie rangeland that is located on a bench above Big Sandy Creek. The topography of the site is generally level to gently sloping. Elevation ranges from about 2,580 to 2,550 feet. One gas well is located within the proposed enclosure. The gas well is plumbed directly into a pipeline collection system, and consist of a well head covered with a small wooden shed. The gas well is maintained about once per month by the gas production company.



Figure 3



The geology of the area is mainly Quaternary-age glacial ground moraines overlying the sandstones, siltstones, and shales of the Cretaceous-age Judith River Formation. The glacial deposits are light-gray clay-rich to sandy or pebbly till containing scattered erratic boulders. The tills were originally deposited by southeast moving Pleistocene-age glaciers. These tills are poorly drained and alkali rich and can become gumbo during rains. The Tertiary-age rocks are associated with the volcanic origin of the Bearpaw Mountains.

Soils form in glacial till on glaciated uplands. Soils mapped on the proposed site by the NRCS are the Joplin-Hillon loams, 2 to 8 percent slopes (about 30% of the area), Telstad-Joplin loams, 0 to 4 percent slopes (about 40% of the area), and Scobey-Kevin clay loams, 0 to 4 percent slopes (about 30% of the area). The soils are mainly loam to clay loam in texture with a neutral to strongly alkaline reaction. Clay content generally ranges from 10 to 45 percent. Calcium carbonate (lime) generally accumulates at relatively shallow depths (3 to 14 inches), ranging up to 15 percent lime by weight. Soils are deep (greater than 60 inches thick), well drained, and have slow to moderately slow permeability. Erosion potential is moderate to high by water and erodible to slightly erodible by wind.

WATER RESOURCES

The proposed Big Sandy Elk Game Farm is situated on 65 acres of the relatively flat plain located immediately adjacent to the steep east slope of Big Sandy Creek. The site is approximately 80 feet higher in elevation than the valley bottom and is currently used for dryland farming. Runoff from the site flows to Big Sandy Creek through one main gully and several smaller gullies which incise the east slope of the valley. There is no surface water at the site, aside from temporary puddles collecting after precipitation or snow melt events. Water for the elk would be obtained from Big Sandy Creek using water rights owned by the game farm owners (Kafka, 1998). The water would be dispensed from storage tanks to be installed at the site.

Numerous parties have water rights for Big Sandy Creek. The creek has a low priority on Montana's Total Maximum Daily Load (TMDL) list. Probable impaired uses include aquatic life support, agriculture, and warm water fisheries. Probable causes of the impairments include dissolved solids, siltation, and thermal modifications likely resulting from crop production and streambank modifications.

Well records on-file with the Montana Department of Natural Resources and Conservation indicate that two water wells are located within 1 mile of the site. One well is used for domestic purposes and the other is reportedly used to water lawns and gardens. The domestic well is located approximately 0.5 mile north-northeast of the site and is 1,745 feet deep with a static water level at 38 feet below grade. The well used for gardening is located approximately 0.75 mile east-northeast of the site and is 211 feet deep with a static water level at 118 feet below grade. Approximately four homes located west of the site in the valley of Big Sandy Creek or on the upland west of the creek reportedly obtain domestic water from the Kremlin municipal water system.

VEGETATION RESOURCES

The proposed 65-acre game farm is located on relatively level agricultural land adjacent to, but above the flood plain of Big Sandy Creek. The game farm is comprised of cropland (54.5 acres, 84%) and native rangeland (11.5 acres, 16%). Current use of this site is to grow small grain crops and to pasture cattle



following the harvest of the crops. The land surrounding the proposed game farm is cropland except for bottomlands along Big Sandy Creek which remain in native vegetation. The riparian zone along Big Sandy Creek contains very little woody vegetation.

Vegetation in uncultivated areas along the edges of the agricultural field is dominated by blue grama, needle-and-thread grass, western wheatgrass, plains muhly, and prairie sandgrass. Native vegetation has been eliminated from the cropland area. Crops planted in the agricultural area include wheat, barley, and oats/peas. Forage production in the native rangeland site is estimated at 750 pounds per acre. Forage production in the cultivated field when used for oat/pea hay averages about 3,000 pounds per acre. Total forage production at the proposed game farm site is estimated at 172,125 pounds. Should the cultivated area be planted to perennial introduced vegetation, productivity in the cropland area would likely decline somewhat. There are no Federally listed threatened or endangered plant species expected to occur within the proposed game farm site. The proposed game farm site does contain suitable habitat for noxious weeds such as spotted knapweed, leafy spurge, Canada thistle, and mullein but these species were not evident during the site inspection.

WILDLIFE RESOURCES

The proposed game farm site represents low density mule deer, white-tailed deer, and pronghorn antelope habitat (Figure 4). These species use the game farm area on an occasional basis. About once a year, a wild elk or moose is reported to travel along Big Sandy Creek. There are no known migration corridors or critical winter range for any big game species in this area. This area is also used by sharp-tailed grouse, gray partridge, and pheasants. These birds primarily winter in shelter belts near the Kafka ranch headquarters and disperse from this area during early spring. In addition, a small impoundment near the proposed game farm site is used by large numbers of ducks, geese and swans during migratory periods. Some Canada geese and mallards nest in the vicinity of the reservoir during spring. This area could potentially be used by migratory bald eagles, and peregrine falcons, (Federally listed bird species), but there are no known resident threatened or endangered wildlife species.

CULTURAL RESOURCES

There are no previously recorded historic or archaeological sites on the proposed game farm; however, several documented sites exist in the immediate vicinity. The absence of cultural properties on the proposed game farm does not mean that they do not exist, but rather may reflect the lack of previous cultural resource inventory.

ENVIRONMENTAL CONSEQUENCES

Only primary resources that have potential adverse effects from the Proposed Action are summarized in this section. A detailed discussion of environmental consequences is contained in *Part II* of this EA (pp. 19-46).

LAND RESOURCES

The Proposed Action plans to place 40 elk in the 65 acre enclosure. Impacts to soil and land resources are expected to be minimal. The major concerns are associated with the relatively high susceptibility to water erosion for each of the different soil types and the high susceptibility of the Hillon soils to wind



Figure 4



erosion. The relatively high clay percentages and the relatively slow permeability of the soils can cause gumbo conditions when it rains, which can account for considerable soil erosion when roads and paths are used under these conditions. Maintaining an adequate vegetative cover is integral to reducing potential impacts to soil productivity from both wind and water erosion.

WATER RESOURCES

Increased runoff and erosion could occur in some areas of the game farm if the stocking rate exceeds the carrying capacity of the pasture and vegetative cover is diminished. The proposal to pasture up to 40 elk on the 65 acre site with supplemental feed available should allow adequate vegetative cover to be maintained at the site.

Domestic elk fecal matter and nutrient-enriched water may have a minor effect on the quality of groundwater and surface water in the vicinity of the game farm, primarily during periods of snowmelt and major precipitation events. Nutrients in runoff from the site could potentially enter Big Sandy Creek. Using the site as cattle pasture would likely have a similar effect. The two water supply wells identified within 1 mile of the site are in excess of 200 feet deep and are not likely to be affected by the game farm operations. Potential transport of pathogens from the game farm into Big Sandy Creek is discussed in the *Risk/Health Hazards* section, below.

VEGETATION RESOURCES

The Proposed Action plans to place up to 40 adult elk within the 65-acre enclosure. Although use of this site by elk would be year-long, the proposed game farm may have more elk present in the winter than other periods of the year. The annual forage consumption for 40 adult elk would be approximately 160,600 pounds. The proposed game farm site could potentially supply all forage requirements of 40 adult elk. However, forage utilization would be nearly 100 percent and it would be unlikely that the proposed game farm site could sustain this level of productivity under continuous grazing or in years of below normal precipitation. Supplemental feed should be supplied to the elk from late fall to early spring.

There are no plans to alter the 11 acres of native plants remaining on the proposed game farm site. However, the cropland will be seeded to alfalfa, crested wheatgrass and pubescent wheatgrass to establish a perennial vegetative cover. Areas where elk are fed or handled may lose vegetative cover or fail to develop vegetative cover, but this would be restricted to a small portion of the game farm. The proposed stocking level of 1.6 acres per elk on a year-long basis is high for a dryland range site such as the proposed game farm site.

Although noxious weeds were not apparent at this site, disturbed sites around feeding areas or handling facilities would provide an opportunity for weeds to become establish. Weed seeds could potentially be imported into the area with feed for the elk.

WILDLIFE RESOURCES

The proposed game farm site is not located within any critical big game winter range, nor is it located along a migration corridor. This specific site receives only occasional use by mule deer, white-tailed deer and pronghorn antelope, and the fencing of 65 acres is not expected to significantly influence deer or



antelope in this area. The proposed game farm would not impact any threatened or endangered species. There are no perennial streams or lakes located within the proposed game farm site and there would be no anticipated impacts to aquatic resources.

Fencing of 65 acres would not likely significantly impact wild deer and antelope living in this area. Wild deer and antelope numbers are very low and habitat is not a limiting factor for these animals. The proposed game farm would not significantly influence the movement of wild deer and pronghorn through this area. The game farm is sufficiently small that deer and antelope can circumnavigate the exterior fence with minimal effort. The loss of 65 acres of cropland/rangeland would not impact the few deer and antelope in the area because this habitat is widely distributed. Wild elk can potentially pass through this area on occasion and could be attracted to the game farm especially during the rut. Bulls fighting through the fence and damaging the fence has been reported elsewhere. The proposed game farm fence would be located primarily on level land and would cross slight slopes (less than 10 degrees) in only two areas.

There would only be minimal opportunity for wild ungulates to enter the game farm because of its small size, excellent characteristic for fencing, and low density of wild deer, antelope and elk. Should deer or other wild ungulates enter the game farm, they would likely be destroyed rather than released back to the wild. These impacts may affect individuals but not populations. There is very little potential for large predators to pass through this area and be attracted to the elk in the enclosure. Construction of the enclosure would not result in conditions that increase stress to wildlife species living in this area beyond the existing conditions of dryland agriculture.

RISK/HEALTH HAZARDS

There is a potential for transmission of water-borne disease pathogens, if present, to be transported downstream from the game farm in Big Sandy Creek. However, this risk would be minor because of game farm animal disease testing requirements and because game farm runoff into Big Sandy Creek would occur only during late winter snowmelt or major precipitation events. In addition, water in Big Sandy Creek is not expected to be used directly for human consumption. While water provides a favorable environment for brucellosis, the dilution factor associated with flowing surface water (i.e. Big Sandy Creek during major runoff events) makes it an unlikely means of transmission.

Infectious diseases can potentially be transmitted between game farm elk and domestic livestock. If brucellosis or tuberculosis should occur in the game farm animals, it could potentially be transmitted between different species. Domestic livestock are currently pastured on adjacent croplands and pasturelands, and there would be an opportunity for contact between domestic livestock and game farm elk. Chronic wasting disease (CWD) also has been detected in game farm elk, but the mode of transmission is unknown and there is no test for this disease in living animals. CWD has been a known wildlife disease for 30 years in Colorado and Wyoming. There is no evidence of CWD transmission to domestic livestock or humans.

The risk of disease being passed from game farm elk to domestic livestock and wildlife would be minimal if fence integrity is maintained and the stipulations and mitigation measures described in this EA are followed. Potential for disease transmission to domestic livestock and wildlife from game farm animals is also mitigated through DoL disease testing requirements. All animals to be placed on this game farm are required to be tested for tuberculosis at the time of import, purchase and/or transportation to the game farm. A test for brucellosis is also required for all game farm animals that are sold or moved within the



state, and is required for all game farm animals imported into Montana. Montana is presently a tuberculosis-free and brucellosis-free state (i.e., these diseases have not been diagnosed in domestic livestock). Each game farm is required to have access to an isolation pen (quarantine facility) on the game farm or approved quarantine plan to isolate any animals that are imported or become ill. The state veterinarian can require additional testing and place herds under strict quarantine should problems arise.

If tuberculosis or brucellosis were to be transmitted from domestic elk and to wild elk and deer, hunters field dressing wild elk or deer would be subject to some risk of infection. Veterinarians and meat cutters working with diseased game farm animals are at risk of becoming infected with brucellosis or tuberculosis. Routine brucellosis and tuberculosis testing requirements for game farm animals offer a measure of surveillance to minimize risk to human health. Failure to comply with these requirements is grounds for license revocation.

Approximately 6 residences have been identified within 1 mile of the site and are within the average maximum ranges of high-powered big game rifles. In addition, unimproved county roads are located about 1 and 0.5 miles south and east of the game farm. The residents or motorists could be exposed to an errant bullet. However, gopher and coyote hunting, and target practice at local rifle ranges occur on a year-round basis in this area. Limited hunting for upland game birds and big game also takes place on private and public land in the area. As a result, local residents are accustomed to shooting and hunting in the vicinity.

CULTURAL RESOURCES

There is a possibility that unknown or unrecorded cultural properties may be present on the proposed game farm. The State Historic Preservation Office (SHPO) recommends that a reconnaissance survey be conducted prior to project initiation to determine if sites exist and if they would be impacted by the Proposed Action.

CUMULATIVE EFFECTS

The Proposed Action would not result in potential impacts that are individually minor but cumulatively considerable. Cumulative effects from past, present, and reasonably foreseeable activities in all resource areas would be similar to those described for the Proposed Action.

EA CONCLUSION

MEPA and game farm statutes require FWP to conduct an environmental analysis for game farm licensing as described in the *Introduction* of this *Summary* section (p. 1). FWP prepares Eas to determine whether a project would have a significant effect on the environment. If FWP determines that a project would have a significant impact that could not be mitigated to less than significant, the FWP would prepare a more detailed EIS before making a decision.

Based on the criteria evaluated in this EA, an EIS would not be required for the Big Sandy Elk Game Farm. The appropriate level of analysis for the Proposed Action is a mitigated EA because all impacts of the Proposed Action have been accurately identified in the EA, and all identified significant impacts would be mitigated to minor or none.



MITIGATION MEASURES

The mitigation measures described in this section address both minor and significant impacts associated with the proposed Big Sandy Elk Game Farm. FWP would require stipulations to mitigate all potentially significant impacts resulting from the Proposed Action. Potential minor impacts from the Proposed Action are addressed as mitigation measures that are strongly recommended to remain in compliance with state and federal environmental laws, but are not required.

REQUIRED STIPULATIONS AND MITIGATIONS

The following stipulations are imposed by FWP for the Big Sandy Game Farm and is designed to mitigate significant impacts identified in the EA to below the level of significance:

- (1) *Provide escort to anyone entering the game farm enclosure (e.g., gas pipeline personnel) when game farm animals are present.*

This stipulation is imposed to mitigate potential risk to wildlife posed by the proposed game farm. Risk to wildlife from contact between game farm animals and wild game is potentially significant due to the site being located in an area currently utilized by wild game.

- (2) *Shooting in the game farm enclosure using high-powered rifles must not occur in the direction of residences located within a 1-mile radius of the game farm. A guide or representative of the ranch familiar with the terrain must accompany each harvester to be sure shooting does not occur toward the nearby residences.*

This stipulation is imposed to mitigate potentially significant risk to public health and safety due to the proximity of residences to the game farm site. The requirement to have a guide with each elk harvester to assure that shooting does not occur in a direction toward the residences would significantly reduce the chances of impacting human health and safety.

RECOMMENDED MITIGATION MEASURES

The following recommended mitigation measures address minor impacts identified in the Big Sandy Elk Game Farm EA for resources that have the most potential affects from the Proposed Action:

Land Resources

- The moderate to strongly alkaline reaction of the soil should be considered when designing the exterior fence. Uncoated steel posts may corrode with time in these soils.
- Maintain a reasonable stocking rate within the game farm enclosures to minimize changes in soil structure and potential increases in erosion from disturbed ground. A "reasonable stocking rate" is defined under *EA Definitions* on the first page of *Part II - Environmental Review* of this EA (p. 19); additional information regarding a reasonable stocking rate is provided under Section 4 (*Vegetation*) of *Part II* in this EA (pp. 27-28).



Air Resources

- Dust management activities include spraying water on unpaved roads during the dry season, vegetating exposed ground where possible, protecting fill piles from wind erosion, and limiting ground disturbance to only the area necessary to complete the job.
- Employ the following best management practices (BMPs) to reduce odor problems if they occur: (1) incorporate waste into soil quickly by plowing or discing; (2) spread waste during cool weather or in the morning during warm, dry weather; and (3) properly dispose of animal carcasses. Carcasses should not be disposed of in or adjacent to water bodies, roads, and ditches.

Water Resources

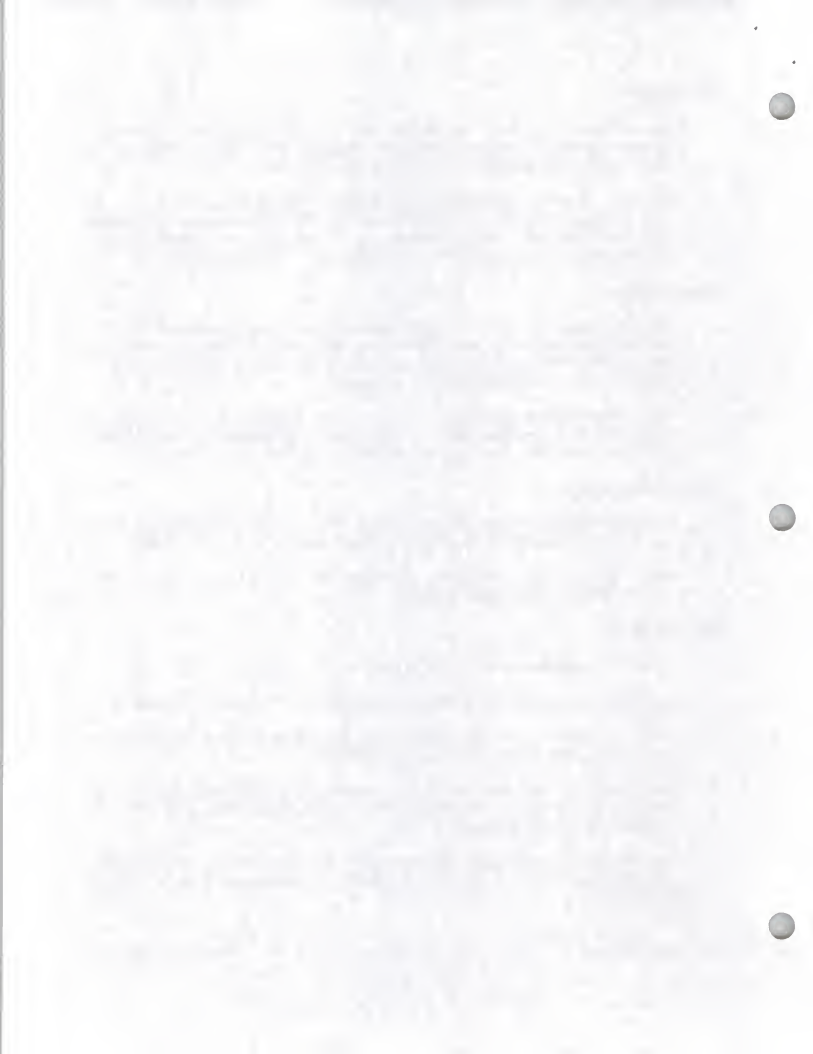
- Maintain a reasonable stocking rate in the game farm area to mitigate potential impacts from runoff and fecal matter. Potential water quality impacts also could be minimized by disposing dead animals and excess fecal material at a site that is isolated from surface water and groundwater (disposal must meet county regulations for solid waste).
- For any areas that may have erosion and sedimentation problems, utilize best management practices (BMPs) where surface water could enter gullies draining to Big Sandy Creek. The BMPs may include earth berms, straw bale dikes, vegetative buffer zones, and/or silt fences.

Vegetation Resources

- Monitor the proposed game farm site for invasion of noxious weeds and treat affected areas in a timely manner. Coordinate with the County to develop a weed control plan, if necessary.
- Supplemental feed and minerals should be provided to the elk on a seasonal basis to reduce excessive grazing on preferred pasture plants.

Wildlife Resources

- Store hay, feed, and salt away from exterior fences or enclose in buildings.
- Feed game farm animals at interior portions of the enclosure and not along the perimeter fence.
- Properly dispose of dead animals and isolate excess fecal material and waste feed from potential contact with humans, domestic animals, and wild animals.
- Inspect exterior game farm fence on a regular basis and immediately after events likely to damage fence to ensure its integrity with respect to trees, frost-heaving, corrosion, burrowing animals, predators, and other game animals.
- If fence integrity or ingress/egress becomes a problem, adjust the fence as necessary, including: double fencing, electrification, additional post support, replacing damaged posts, or increased fence height.



- During winters of exceptional snow cover, remove snow on either side of the perimeter fence to prevent ingress/egress, or keep game farm animals away from fence areas where significant snow buildup occurs.

Cultural Resources

- Mitigate impacts to cultural resources by stopping work in the area of any observed archeological artifact. Report discovery of historical objects to the Montana Historical Society, Historic Preservation Office. If work stoppage in the area containing observed artifacts is not possible, record the location and position of each object, take pictures and preserve the artifact(s).



ENVIRONMENTAL

PART I. GAME FARM LICENSE APPLICATION

Montana Fish, Wildlife & Park's authority to regulate game farms is contained in sections 87-4-406 through 87-4-424, MCA and ARM 12.6.1501 through 12.6.1519.

1. **Name of Project:** Big Sandy Elk Game Farm

Date of Acceptance of Completed Application: January 4, 19998

2. **Name, Address and Phone Number of Applicant(s):**

Kim & Cindy Kafka
HC 30, Box 302
Havre, MT 59501
(406) 395-4556

3. **If Applicable:**

Estimated Construction/Commencement Date: Spring 1999 or upon approval

Estimated Completion Date: Three years from start date

Is this an application for expansion of existing facility or is a future expansion contemplated?

This is an application for a new facility.

4. **Location Affected by Proposed Action (county, range and township):**

Hill County, 65 acres in the following:
E½, SW¼ Section 18; T32N, R14E.

5. **Project Size:** Estimate number of acres that would be directly affected that are currently:

(a) Developed:	(d) Floodplain.....	acres
residential.....		acres
industrial.....	(e) Productive:	
	irrigated cropland.....	acres
(b) Open Space/Woodlands/Areas.....	dry cropland.....	54.5 acres
	forestry.....	acres
	rangeland.....	11.5 acres
(c) Wetlands/Riparian Areas.....	other.....	acres



6. **Map/site plan:**

The following maps are included in the introductory summary of this EA:

- Figure 1: Site Map
- Figure 2: Land Use and Land Cover
- Figure 3: Big Game Distribution
- Figure 4: Land Ownership

7. **Narrative Summary of the Proposed Action or Project including the Benefits and Purpose of the Proposed Action:**

FWP received an application on December 8, 1998 from Kim and Cindy Kafka to construct the Big Sandy Elk Game Farm at a site approximately 6 miles southwest of Havre, Hill County, Montana. The Proposed Action consists of placing 40 adult elk (cows or bulls) on a 65-acre pasture (Figure 1). The site consists of level cropland overlooking the valley of Big Sandy Creek. The Kafka's live approximately 1 mile south of the site. The purpose of the game farm is to provide breeding stock, meat, and antlers. Occasional fee shooting of elk by the public is also proposed.

The applicants operate an 40-acre elk game farm 1 mile south of the site (Figure 2) (FWP Game Farm License No. 622) and a 1,145-acre elk shooting preserve 6 miles to the east (Diamond K Ranch Game Farm). The applicants have also proposed an 869 acre shooting preserve game farm (Diamond K Elk Enterprises Ranch 2) for elk, deer, and other game located immediately south and southwest of the proposed Big Sandy Elk game farm site. If excess bull elk remain at the end of December at the nearby shooting preserves, these elk would be transferred to the proposed game farm site for a three month period. These mature bull elk may be subjected to occasional harvest during winter. Bulls not harvested during the winter would be relocated back to the shooting preserve in late March/early April. The proposed game farm would also be used to hold adult female elk and their calves on a year-long basis. The maximum number of elk proposed for the game farm would be 40.

The applicants would sell and dispose of domestic elk in accordance with Montana game farm and disease control requirements stipulated in Montana statute and administrative rules. Fence construction would be in accordance with requirements of FWP under ARM 12.6.1531. Fencing would consist of 8-foot high, 6-inch mesh game fence supported by wood or steel posts set at least 3 feet into the ground and not more than 24 feet apart. Corner and end posts would be braced. Two proposed exterior gates would be equipped with one latching and at least one locking device. Quarantine and handling facilities would be provided in accordance with DoL requirements.

8. **Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction:**

(a) **Permits:**

<u>Agency Name</u>	<u>Permit</u>	<u>Approval Date and Number</u> ____
Department of Livestock	approval of quarantine and handling facility	Pending



(b) Funding:

<u>Agency Name</u>	<u>Funding Amount</u>
none	

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

<u>Agency Name</u>	<u>Type of Responsibility</u>
Montana Department of Livestock	disease control
Montana Department of Environmental Quality (DEQ)	water quality, air quality waste management
Montana State Historical Preservation Office (SHPO)	cultural resources
Montana Department of Natural Resources and Conservation (DNRC)	water rights
Natural Resource Conservation Service (NRCS)	soil conservation
Hill County Conservation District	stream crossings
U.S. Army Corps of Engineers (COE)	wetlands
Hill County Weed Control District	weed control

9. List of Agencies Consulted During Preparation of the EA:

Montana Department of Livestock

Montana Department of Environmental Quality

Montana State Historical Preservation Office

Montana Department of Natural Resources and Conservation

U.S. Department of Agriculture, Natural Resource Conservation Service

Hill County Conservation District

REFERENCES:

Kafka, Kim and Cindy, 1998. Application for Big Sandy Elk Game Farm dated December 3, 1998.



PART II. ENVIRONMENTAL REVIEW

This section of the EA presents results of an environmental review of the proposed Big Sandy Elk Game Farm (Proposed Action). The assessment evaluated direct and indirect impacts and cumulative effects of the Proposed Action on the following resources of the physical environment: land, air, water, vegetation, fish and wildlife; and the following concerns of the human environment: noise, land use, human health risk, community impacts, public services and taxes, aesthetics and recreation, and cultural and historical resources. Impacts were determined to fall in one of four categories: unknown, none, minor and significant. For the purposes of this EA, and in accordance with ARM 12.2.429 through 12.2.431, these terms are defined as follows:

EA DEFINITIONS

Cumulative Effects: Collective impacts on the physical and human environment of the Proposed Action when considered in conjunction with other past and present actions related to the Proposed Action by location or generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impacts statement evaluation, or permit processing procedures.

Unknown Impacts: Information is not available to facilitate a reasonable prediction of potential impacts.

Significant Impacts: A determination of significance of an impact in this EA is based on individual and cumulative impacts from the Proposed Action. If the Proposed Action results in significant impacts that can not be effectively mitigated, FWP must prepare an EIS. The following criteria are considered in determining the significance of each impact on the quality of the human environment:

- severity, duration, geographic extent and frequency of occurrence of the impact;
- probability that the impact would occur if the Proposed Action occurs;
- growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative effects;
- quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources or values;
- importance to the state and to society of each environmental resource or value that would be affected;
- any precedent that would be set as a result of an impact of the Proposed Action that would commit FWP to future actions with significant impacts or a decision in principle about such future actions; and
- potential conflict with local, state, or federal laws, requirements, or formal plans.

Reasonable Stocking Rate: The density of animals appropriate to maintain vegetative cover in pasture condition that minimizes soil erosion from major precipitation events and snowmelt. The methodology for determining reasonable stocking rate is presented under the evaluation for *Vegetation Resources*, in Section 4 of the Checklist portion of this EA document (pp. 27-28). Factors to consider in determining an overall reasonable stocking rate include vegetation type and density, ground slope, soil type, and precipitation.



PHYSICAL ENVIRONMENT

1. <u>LAND RESOURCES</u> Would the Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?			X		Yes	1(b)
c. Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				

AFFECTED ENVIRONMENT:

The proposed Big Sandy Elk game farm is located about six miles southwest of the town of Havre, Montana in an area known as the Tiger Ridge Gas Field. The proposed game farm is on 65 acres of primarily dry crop land and prairie rangeland that is located on a bench above Big Sandy Creek. The topography of the site is generally level to gently sloping. Elevation ranges from about 2,580 to 2,550 feet. One gas well is located within the proposed enclosure. The gas well is plumbed directly into a pipeline collection system, and consist of a well head covered with a small wooden shed. The gas well is maintained about once per month by the gas production company.

The geology of the area is mainly Quaternary-age glacial ground moraines overlying the sandstones, siltstones, and shales of the Cretaceous-age Judith River Formation. The glacial deposits are light-gray clay-rich to sandy or pebbly till containing scattered erratic boulders. The tills were originally deposited by southeast moving Pleistocene-age glaciers. These tills are poorly drained and alkali rich and can become gumbo during rains (Kerr, et.al., 1957; Pecora, et.al., 1957). The Tertiary-age rocks are associated with the volcanic origin of the Bearpaw Mountains.

Soil information for the area was obtained from the Natural Resource Conservation Service's (NRCS) field office in Havre. Soil maps were provided by the NRCS from a digital copy of the Hill County unpublished working maps (NRCS, 1998). Data on the physical and chemical characteristics of soil types were generated from the NRCS soil database.

Soils form in glacial till on glaciated uplands. Soils mapped on the proposed site by the NRCS are the Joplin-Hillon loams, 2 to 8 percent slopes (about 30% of the area), Telstad-Joplin loams, 0 to 4 percent slopes (about 40% of the area), and Scobey-Kevin clay loams, 0 to 4 percent slopes (about 30% of the area). The soils are mainly loam to clay loam in texture with a neutral to strongly alkaline reaction. Clay content generally ranges from 10 to 45 percent. Calcium carbonate (lime) generally accumulates at relatively shallow depths (3 to 14 inches), ranging up to 15 percent lime by weight. Soils are deep (greater than 60 inches thick), well drained, and have slow to moderately slow permeability. Erosion potential is moderate to high by water and erodible to slightly erodible by wind.



PROPOSED ACTION:

- 1(b) The Proposed Action plans to place 40 elk in the 65 acre enclosure. Impacts to soil and land resources are expected to be minimal. The major concerns are associated with the relatively high susceptibility to water erosion for each of the different soil types and the high susceptibility of the Hillon soils to wind erosion. The relatively high clay percentages and the relatively slow permeability of the soils can cause gumbo conditions when it rains, which can account for considerable soil erosion when roads and paths are used under these conditions. Maintaining an adequate vegetative cover is integral to reducing potential impacts to soil productivity from both wind and water erosion.

NO ACTION:

Under the No Action Alternative, the current condition of the property would not change. Impacts to the soil resource under the No Action Alternative would likely be similar to the Proposed Action in the event farming of the crop land continues.

CUMULATIVE EFFECTS:

As this area is used intensively for agricultural production, the cumulative effect to soil resources of using the proposed site as a game farm is expected to be slight. The proposed permit area does not contain any unique or significant soil or land resources that would be lost due to the proposed land use change.

COMMENTS:

Required Stipulations: None

Recommended Mitigation Measures:

The moderate to strongly alkaline reaction of the soil should be considered when designing the exterior fence. Uncoated steel posts may corrode with time in these soils.

Maintain a reasonable stocking rate within the game farm enclosures to minimize changes in soil structure and potential increases in erosion from disturbed ground. A "reasonable stocking rate" is defined under *EA Definitions* on the first page of *Part II - Environmental Review* of this EA (p.19); additional information regarding a reasonable stocking rate is provided under Section 4 (*Vegetation*) of *Part II* in this EA (pp. 27-28).

REFERENCES:

J.H. Kerr, W.T. Pecora, D.B. Stewart, and H.R. Dixon. 1957. Preliminary Geologic Map of the Shambo Quadrangle, Bearpaw Mountains, Montana. U.S. Geological Survey, Miscellaneous Geologic Investigations Map I-236. Washington, D.C.

Pecora, W.T., I.J. Witkind, and D.B. Stewart. 1957. Preliminary General Geologic Map of the Laredo Quadrangle, Bearpaw Mountains, Montana. U.S. Geological Survey, Miscellaneous Geologic Investigations Map I-234. Washington, D.C.

U.S. Department of Agriculture, Natural Resource Conservation Service, 1998. Unpublished maps and data. Soil Survey field office, Havre, Montana.



PHYSICAL ENVIRONMENT

2. AIR Would the Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Emission of air pollutants or deterioration of ambient air quality?			X		Yes	2(a)
b. Creation of objectionable odors?			X		Yes	2(b)
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				

AFFECTED ENVIRONMENT:

The proposed game farm site is situated in a predominantly agricultural area located approximately 6 miles southwest of Havre, Montana. Dirt roads provide access to the site. This area is sparsely populated with no apparent air quality problems. This area is not classified for air quality attainment status (DEQ 1997). Approximately six residences are located within 1 mile of the site. The residences are located approximately 0.25 to 0.75-mile and west, northwest, north, and northeast of the site.

PROPOSED ACTION:

- 2(a) Fence construction and road use may result in short-term minor increases in particulate matter in ambient air.
- 2(b) Minor odor problems may result from waste management practices in areas where elk concentrate to feed. Odors associated with the cattle already abundant in this area would be similar to those elk may create.

NO ACTION:

No impacts to air quality are expected to result from the No Action Alternative.

CUMULATIVE EFFECTS:

No additional impacts from past, present or reasonably foreseeable activities near the proposed game farm are anticipated.

COMMENTS:

Dust and odor are not expected to be of significant concern at the proposed game farm site due to distances to the relatively sparse population in this area. If dust and/or odor problems arise, mitigation measures can be implemented.

Required Stipulations: None



Recommended Mitigation Measures:

- Dust management activities include spraying water on unpaved roads during the dry season, vegetating exposed ground where possible, protecting fill piles from wind erosion, and limiting ground disturbance to only the area necessary to complete the job.
- Employ the following best management practices (BMPs) to reduce odor problems if they occur: (1) incorporate waste into soil quickly by plowing or discing; (2) spread waste during cool weather or in the morning during warm, dry weather; and (3) properly dispose of animal carcasses. Carcasses should not be disposed of in or adjacent to water bodies, roads, and ditches. These and other BMPs are described in "Guide to Animal Waste Management and Water Quality Protection in Montana" (DEQ 1996).

REFERENCES:

Montana Department of Environmental Quality (DEQ), 1997. Montana Air Quality Non-Attainment Areas. Revised January, 1997.

DEQ, 1996. Guide to Animal Waste Management and Water Quality Protection in Montana. Helena, MT.



PHYSICAL ENVIRONMENT

3. WATER Would the Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?			X		Yes	3(a)
b. Changes in drainage patterns or the rate and amount of surface runoff?			X		Yes	3(a)
c. Alteration of the course or magnitude of flood water or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?			X		Yes	3(f)
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?			X		Yes	3(f)
i. Violation of the Montana non-degradation statute?		X				
j. Effects on any existing water right or reservation?		X				
k. Effects on other water users as a result of any alteration in surface or groundwater quality?			X		Yes	3(f)
l. Effects on other water users as a result of any alteration in surface or groundwater quantity?		X				

AFFECTED ENVIRONMENT:

The valley of Big Sandy Creek is cut into a gently sloping plain (Figure 1). The proposed Big Sandy Elk Game Farm is situated on 65 acres of the plain located immediately adjacent to the steep east slope of the valley. The site is approximately 80 feet higher in elevation than the valley bottom and is currently used for dryland farming. Runoff from the site flows to Big Sandy Creek through one main gully and several smaller gullies which incise the east slope of the valley. There is no surface water at the site, aside from temporary puddles collecting after precipitation or snow melt events. Water for the elk would be obtained from Big Sandy Creek using the game farm owners surface water right (Kafka, 1998). The water would be dispensed from storage tanks to be installed at the site.

Numerous parties have water rights for Big Sandy Creek (DNRC, 1999). The creek has a low priority on Montana's Total Maximum Daily Load (TMDL) list (DEQ, 1998). Probable impaired uses include aquatic life support, agriculture, and warm water fisheries. Probable causes of the impairments include dissolved solids, siltation, and thermal modifications likely resulting from crop production and streambank modifications.



Well records on-file with the Montana Department of Natural Resources and Conservation (DNRC, 1999) indicate that two water wells are located within 1 mile of the site. One well is used for domestic purposes and the other is reportedly used to water lawns and gardens. The domestic well is located approximately 0.5 mile north-northeast of the site and is 1,745 feet deep with a static water level at 38 feet below grade. The well used for gardening is located approximately 0.75 mile east-northeast of the site and is 211 feet deep with a static water level at 118 feet below grade. Approximately four homes located west of the site in the valley of Big Sandy Creek or on the upland west of the creek reportedly obtain domestic water from the Kremlin municipal water system (Kafka, 1999).

PROPOSED ACTION:

- 3(a) Increased runoff and erosion could occur in some areas of the game farm if the stocking rate exceeds the carrying capacity of the pasture and vegetative cover is diminished. The proposal to pasture up to 40 elk on the 65 acre site with supplemental feed available should allow adequate vegetative cover to be maintained at the site.

If vegetative cover is reduced significantly, the game farm operation could meet the definition of an "animal feeding operation" (ARM 17.30.1304(3)). If water containment structures are needed on the project site to control runoff and do not have the capacity for the 25-year, 24-hour storm, a "concentrated animal feeding operations" (CAFO) permit must be obtained to permit the discharge. A CAFO permit, however, is not expected to be required for the Big Sandy Elk Game Farm operation. Filling or dredging of any waters of the U.S. (e.g., culvert installation) may require a "404 Permit" from the U.S. Army Corps of Engineers (COE).

- 3(f) Domestic elk fecal matter and nutrient-enriched water may have a minor effect on the quality of groundwater and surface water in the vicinity of the game farm, primarily during periods of snowmelt and major precipitation events. Nutrients in runoff from the site could potentially enter Big Sandy Creek. Using the site as cattle pasture would likely have a similar effect. The two water supply wells identified within 1 mile of the site are in excess of 200 feet deep and are not likely to be affected by the game farm operations. Potential transport of pathogens from the game farm into Big Sandy Creek is discussed in the following *Risk/Health Hazards* section.

NO ACTION:

Current hydrologic conditions are not expected to change under the No Action Alternative; dryland crop production or cattle ranching would likely be conducted in the project area if the game farm is not constructed.

CUMULATIVE EFFECTS:

The general area is used for crop production, ranching, and rural housing. A 40-acre elk game farm owned by the applicant is currently in operation 1-mile to the south (Figure 2). The applicant has also proposed an 869-acre game farm for elk, deer, and other game located southwest and south of the site. Using the land to stock game animals likely has a similar effect on water resources as stocking cattle. Therefore, using the site for a game farm would not cause any significant cumulative effects on water resources.

COMMENTS:

Due to potential minor impacts identified above from increased runoff and elk fecal matter, several mitigation measures are recommended. Other water quality protection practices may be required by the



Montana Department of Environmental Quality (DEQ) if it is determined that a CAFO permit is necessary. Refer to "Guide to Animal Waste Management and Water Quality Protection in Montana" (DEQ 1996) and "Common Sense and Water Quality, A Handbook for Livestock Producers" (Montana Department of Health and Environmental Sciences, 1994) for further information on mitigation measures and CAFO permits. The following management practices are recommended to minimize the risk of discharging pollutants to state water:

Required Stipulations: None.

Recommended Mitigation Measures:

- Maintain a reasonable stocking rate in the game farm area to mitigate potential impacts from runoff and fecal matter. Potential water quality impacts also could be minimized by disposing dead animals and excess fecal material at a site that is isolated from surface water and groundwater (disposal must meet county regulations for solid waste). The gut piles would be disposed of in a gas-fired incinerator.
- For any areas that may have erosion and sedimentation problems, utilize best management practices (BMPs) where surface water could enter gullies draining to Big Sandy Creek. The BMPs may include earth berms, straw bale dikes, vegetative buffer zones, and/or silt fences.

REFERENCES:

Kafka, Kim and Cindy, 1998. Application for Big Sandy Elk Game Farm dated December 3, 1998.

Kafka, Kim, 1999. Personal communication with Chris Cronin, Maxim Technologies during site visit on February 25, 1999.

Montana Department of Environmental Quality (DEQ), 1998. Montana's List of Waterbodies In Need Of Total Maximum Daily Load (TMDL) Development. Helena, MT.

Montana Department of Environmental Quality (DEQ), 1996. Guide to Animal Waste Management and Water Quality Protection in Montana. Helena, MT.

Montana Department of Health and Environmental Sciences (DHES), 1994. Common Sense and Water Quality, A Handbook for Livestock Producers. Water Quality Division. Helena, MT.

Montana Department of Natural Resources and Conservation (DNRC), 1999. Computer File Search of Water Rights. Helena DNRC office. Obtained online from Internet. February and March 1999.



PHYSICAL ENVIRONMENT

4. VEGETATION	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	Would the Proposed Action result in:	UNKNOWN	NONE	MINOR	SIGNIFICANT	
a.	Changes in the diversity, productivity or abundance of plant species?		X			4(a)
b.	Alteration of a plant community?		X			4(b)
c.	Adverse effects on any unique, rare, threatened, or endangered species?		X			
d.	Reduction in acreage or productivity of any agricultural land?		X			4(d)
e.	Establishment or spread of noxious weeds?			X	Yes	4(e)

AFFECTED ENVIRONMENT:

The proposed 65-acre game farm is located on relatively level agricultural land adjacent to, but above the flood plain of Big Sandy Creek about 5 miles southwest of Havre, MT. The game farm is comprised of cropland (54.5 acres, 84%) and native rangeland (11.5 acres, 16%). Current use of this site is to grow small grain crops and to pasture cattle following the harvest of the crops. Vegetation in uncultivated areas along the edges of the agricultural field is dominated by blue grama, needle-and-thread grass, western wheatgrass, plains muhly, and prairie sandgrass. Native vegetation has been eliminated from the cropland area. Crops planted in the agricultural area include wheat, barley, and oats/peas. Forage production in the native rangeland site is estimated at 750 pounds per acre. Forage production in the cultivated field when used for oat/pea hay averages about 3,000 pounds per acre (Kim Kafka, pers. commun.). Total forage production at the proposed game farm site is estimated at 172,125 pounds. Should the cultivated area be planted to perennial introduced vegetation, productivity in the cropland area would likely decline somewhat. There are no Federally listed threatened or endangered plant species expected to occur within the proposed game farm site. The proposed game farm site does contain suitable habitat for noxious weeds such as spotted knapweed, leafy spurge, Canada thistle, and mullein but these species were not evident during the site inspection.

PROPOSED ACTION:

- 4(a) The Proposed Action plans to place up to 40 adult elk within the 65-acre enclosure. Although use of this site by elk would be year-long, the proposed game farm may have more elk present in the winter than other periods of the year. If excess bull elk remain at the end of December at a nearby shooting preserve(s), these elk would be transferred to the proposed game farm site for a three month period. These mature bull elk might be subjected to occasional harvest during winter. Bulls not harvested during the winter would be relocated back to the shooting preserve(s) in late March/early April. The annual forage consumption for 40 adult elk would be approximately 160,600 pounds. The proposed game farm site could potentially supply all forage requirements of 40 adult elk. However, forage utilization would be nearly 100 percent and it would be unlikely that the proposed game farm site could sustain this level of productivity under continuous grazing or in years of below normal precipitation. Supplemental feed should be supplied to the elk from late fall to early spring.



- 4(b) There are no plans to alter the 11 acres of native plants remaining on the proposed game farm site. However, the cropland would be seeded to alfalfa, crested wheatgrass and pubescent wheatgrass to establish a perennial vegetative cover. Areas where elk are fed or handled may lose vegetative cover or fail to develop vegetative cover, but this would be restricted to a small portion of the game farm. The proposed stocking level of 1.6 acres per elk on a year-long basis is high for a dryland range site such as the proposed game farm site.
- 4(d) Development of the proposed game farm would result in the conversion of 54 acres of cropland to pastureland. There are extensive areas of cropland surrounding Havre, and the loss of 54 acres of cropland is insignificant.
- 4(e) Although noxious weeds were not apparent at this site, disturbed sites around feeding areas or handling facilities would provide an opportunity for weeds to become establish. Weed seeds could potentially be imported into the area with feed for the elk.

NO ACTION:

The No Action Alternative would likely result in the continuation of the present management of dryland crop production.

CUMULATIVE EFFECTS:

There are no anticipated cumulative effects on vegetation resources associated with the proposed project. The proposed game farm site, a proposed 870-acre game farm site and an existing 40-acre game farm have all been extensively cultivated with little native vegetation remaining.

COMMENTS:

Due to potential impacts identified above on vegetation resources, mitigation measure(s) are recommended.

Required Stipulations: None

Recommended Mitigation Measures:

- Monitor the proposed game farm site for invasion of noxious weeds and treat affected areas in a timely manner. Should noxious weeds be detected, a weed control program should be implemented to control the weeds.
- Supplemental feed and minerals should be provided to the elk on a seasonal basis to reduce excessive grazing on preferred pasture plants.

REFERENCES:

Kafka, Kim. 1999. Game Farm owner. Personal communication with Craig Knowles, FaunaWest Wildlife Consultants. February 1999.



PHYSICAL ENVIRONMENT

5. FISH/WILDLIFE	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	Would the Proposed Action result in:	UNKNOWN	NONE	MINOR	SIGNIFICANT	
a.	Deterioration of critical fish or wildlife habitat?			X		5(a)
b.	Changes in the diversity or abundance of game species?			X		5(b)
c.	Changes in the diversity or abundance of nongame species?			X		
d.	Introduction of new species into an area?			X		
e.	Creation of a barrier to the migration or movement of animals?		X		No	5(e)
f.	Adverse effects on any unique, rare, threatened, or endangered species?			X		
g.	Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?			X		

AFFECTED ENVIRONMENT:

The proposed 65-acre game farm is located approximately 6 miles southwest of Havre, Montana. The game farm is comprised of cropland (54.5 acres, 84%) and native rangeland (11.5 acres, 16%). The site is currently used to grow small grain crops and to pasture cattle following the harvest. The site is located on a broad bench adjacent to and above Big Sandy Creek. The land surrounding the proposed game farm is cropland except for bottomlands along Big Sandy Creek which remain in native vegetation. The riparian zone along Big Sandy Creek contains very little woody vegetation.

The proposed game farm site represents low density mule deer, white-tailed deer, and pronghorn antelope habitat. These species use the game farm area on an occasional basis (Shane Reno, pers. commun.). About once a year, a wild elk or moose is reported to travel along Big Sandy Creek (Shane Reno, pers. commun.). There are no known migration corridors or critical winter range for any big game species in this area. This area is also used by sharp-tailed grouse, gray partridge, and pheasants. These birds primarily winter in shelter belts near the Kafka ranch headquarters and disperse from this area during early spring. In addition, a small impoundment near the proposed game farm site is used by large numbers of ducks, geese and swans during migratory periods. Some Canada geese and mallards nest in the vicinity of the reservoir during spring (Kim Kafka, pers. commun.). This area could potentially be used by migratory bald eagles, and peregrine falcons, (Federally listed bird species), but there are no known resident threatened or endangered wildlife species.

PROPOSED ACTION:

- 5(a) The Proposed Action plans to place up to 40 adult elk on 65 acres of land. The primary purpose of the proposed game farm is to provide a holding facility for unharvested mature bull elk that need to be removed from a nearby shooting preserve(s). These elk would be held at the game farm from January through March. The game farm would also be used to hold adult female elk and their calves on a year-long basis. There would be an occasional adult bull elk harvested within



the game farm primarily during the winter months. Upon slaughter of game farm animals, the carcasses come under the ownership of the shooters. The gut piles would be disposed of in a gas fired incinerator.

The proposed game farm site is not located within any critical big game winter range, nor is it located along a migration corridor. This specific site receives only occasional use by mule deer, white-tailed deer and pronghorn antelope, and the fencing of 65 acres is not expected to significantly influence deer or antelope in this area. The proposed game farm would not impact any threatened or endangered species. There are no perennial streams or lakes located within the proposed game farm site and there would be no anticipated impacts to aquatic resources.

- 5(b) Fencing of 65 acres would not likely significantly impact wild deer and antelope living in this area. Wild deer and antelope numbers are very low and habitat is not a limiting factor for these animals. The loss of 65 acres of cropland/rangeland would not impact the few deer and antelope in the area because this habitat is widely distributed. Wild elk can potentially pass through this area on occasion and could be attracted to the game farm especially during the rut. Bulls fighting through the fence and damaging the fence has been reported elsewhere. The proposed game farm fence would be located primarily on level land and would cross slight slopes (less than 10 degrees) in only two areas.

There would only be minimal opportunity for wild ungulates to enter the game farm because of its small size, excellent characteristic for fencing, and low density of wild deer, antelope and elk. Should deer or other wild ungulates enter the game farm, they would likely be destroyed rather than released back to the wild. These impacts may affect individuals but not populations. There is very little potential for large predators to pass through this area and be attracted to the elk in the enclosure.

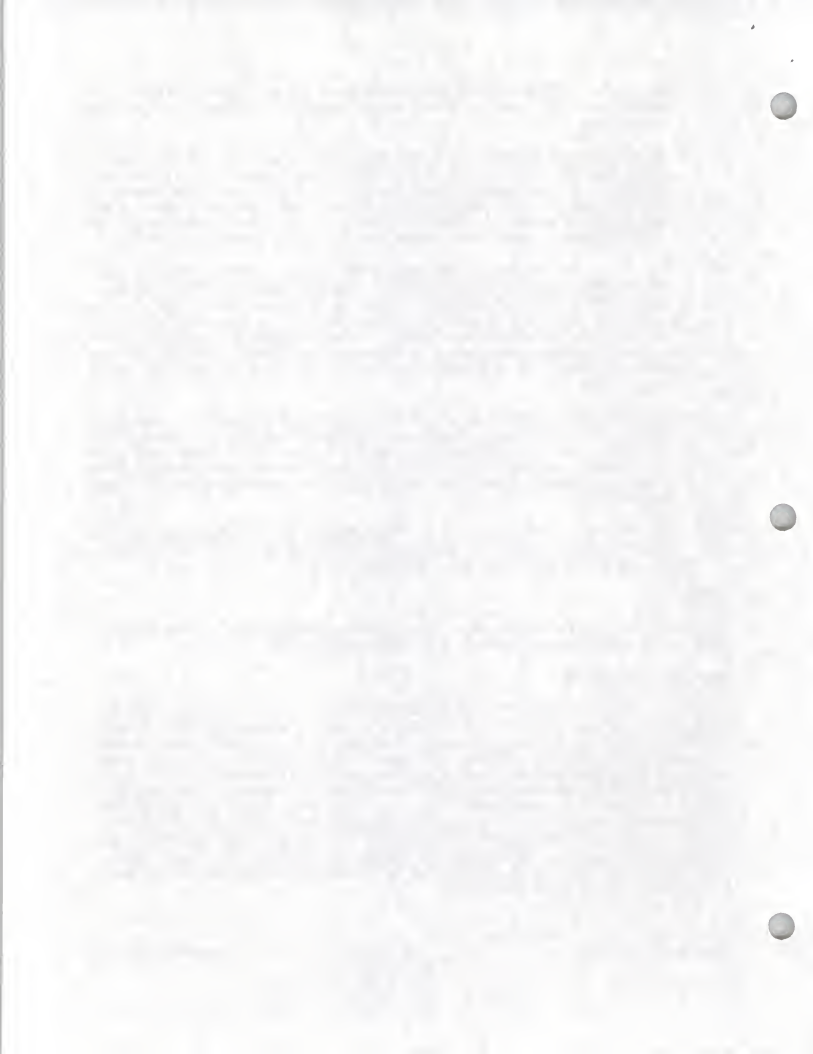
- 5(e) The proposed game farm would not significantly influence the movement of wild deer and pronghorn through this area. The game farm is sufficiently small that deer and antelope can circumnavigate the exterior fence with minimal effort.

NO ACTION:

No wildlife related impacts are expected to occur under the No Action Alternative. The area would continue to be managed for crop production and domestic livestock grazing.

CUMULATIVE EFFECTS:

There is an existing 40-acre game farm at the Kafka ranch headquarters about one mile southeast of the proposed game farm site. There also is a proposal to build a third game farm in this immediate vicinity that would be about 870 acres in size. Cumulatively there would be 975 acres of land within a 2.5 square mile area fenced to exclude wild ungulates. Within these enclosures there could potentially be 480 adult elk plus 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep and 10 mountain goats. This would be a large enough area to become a significant influence on the home range use of one or more deer. The probability that the three game farms might become a passage barrier is diminished somewhat because there are sufficiently large gaps between the two proposed game farms to allow for movement of wild ungulates, and there would also be a small gap between the two large pastures of the other proposed game farm that wild ungulates could potentially pass through. Despite the combined size to the two proposed game farms and the third existing game farm, cumulative impacts on wildlife resources in this area would be minor.



COMMENTS:

Mitigation measures are recommended to minimize potential impacts to free-ranging wildlife.

Required Stipulation: None.

Recommended Mitigation Measures:

The following standard game farm management practices will help to minimize impacts to free ranging wildlife species. Implementation of these practices is highly recommended and should be considered a form of mitigation.

- Store hay, feed, and salt away from exterior fences or enclose in buildings.
- Feed game farm animals at interior portions of the enclosure and not along the perimeter fence.
- Properly dispose of dead animals and isolate excess fecal material and waste feed from potential contact with humans, domestic animals, and wild animals.
- Inspect exterior game farm fence on a regular basis and immediately after events likely to damage fence to ensure its integrity with respect to trees, frost-heaving, corrosion, burrowing animals, predators, and other game animals.
- If fence integrity or ingress/egress becomes a problem, adjust the fence as necessary, including: double fencing, electrification, additional post support, replacing damaged posts, or increased fence height.
- During winters of exceptional snow cover, remove snow on either side of the perimeter fence to prevent ingress/egress, or keep game farm animals away from fence areas where significant snow buildup occurs.

REFERENCES:

Kafka, Kim. 1999. Game Farm owner. Personal communication with Craig Knowles, FaunaWest Wildlife Consultants. February 1999.

Reno, Shane. 1999. Montana Fish, Wildlife & Parks Game Warden. Personal communication with Craig Knowles, FaunaWest Wildlife Consultants. February 1999.



HUMAN ENVIRONMENT

6. NOISE EFFECTS Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Increases in existing noise levels?			X		Yes	6(a)
b. Exposure of people to severe or nuisance noise levels?		X				

AFFECTED ENVIRONMENT:

Operation of agricultural equipment, livestock, hunting, and target shooting currently generate noise in the site vicinity. Noise generated by the proposed game farm will be similar to existing conditions. Due to the sparse population, these sources of noises are likely not considered a problem.

PROPOSED ACTION:

- 6(a) The Proposed Action would result in a minor short-term increase in existing noise levels from fence construction, land clearing, and shooting. The nearest neighbors are located approximately 0.25 to 0.5-mile and west, northwest, and north of the site.

NO ACTION:

No impacts to existing noise levels are expected from the No Action Alternative.

CUMULATIVE EFFECTS:

No additional impacts on noise levels from past, present or reasonably foreseeable activities near the proposed game farm are anticipated.

COMMENTS:

Due to the distance to the nearest residences and overall sparse population in the area, noise generated from the proposed game farm should not cause a problem. If noise concerns are raised, mitigation measures can be employed.

Required Stipulations: None

Recommended Mitigation Measures:

Impacts to neighbors from construction noise can be reduced by limiting noisy activities to daylight hours and completing construction promptly.



HUMAN ENVIRONMENT

7. LAND USE Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the Proposed Action?		X				
d. Conflict with any existing land use that would be adversely affected by the Proposed Action?		X				
e. Adverse effects on or relocation of residences?		X				

AFFECTED ENVIRONMENT:

The proposed game farm is surrounded by private rangeland and cropland (Figures 2 and 3). Approximately 6 residences have been identified within 1 mile of the site. These residences comprise: three homes located on the bluff west of the Big Sandy Creek Valley, about 0.5-mile to the west; one home with ranch buildings located in the valley bottom, about 0.25-mile to the northwest; one home located on the east bluff of the valley, about 0.25-mile to the north; and one home about 0.75-mile to the northeast.

PROPOSED ACTION:

The proposed game farm would be compatible with existing agricultural land uses.

NO ACTION:

The No Action Alternative would result in no change in the present agricultural uses of the site.

CUMULATIVE EFFECTS:

No cumulative impacts are expected on land use from the proposed game farm project.

COMMENTS:

No mitigation measures are recommended.



HUMAN ENVIRONMENT

8. <u>RISK/HEALTH HAZARDS</u> Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Risk of dispersal of hazardous substances (including, but not limited to chemicals, pathogens, or radiation) in the event of an accident or other forms of disruption?			X		Yes	8(a)
b. Creation of any hazard or potential hazard to domestic livestock?			X		Yes	8(b)
c. Increased risk of contact and disease between game farm animals and wild game?			X		Yes	8(c)
d. Creation of any hazard or potential hazard to human health?				X	Yes	8(d)

PROPOSED ACTION:

8(a) There is a potential for transmission of water-borne disease pathogens, if present, to be transported downstream from the game farm in Big Sandy Creek. However, this risk would be minor because of game farm animal disease testing requirements and because game farm runoff into Big Sandy Creek would occur only during late winter snowmelt or major precipitation events. In addition, water in Big Sandy Creek is not expected to be used for human consumption. While water provides a favorable environment for brucellosis, the dilution factor associated with flowing surface water (i.e. Big Sandy Creek during major runoff events) makes it an unlikely means of transmission (Nielson and Duncan, 1990). Survival times for brucellosis and tuberculosis in water range from a couple of days to over 100 days (Nielson and Duncan, 1990; Meyer, 1997). The route of chronic wasting disease (CWD) transmission at this time is unknown; therefore, the potential for transmission by soil, water or other media cannot be determined.

8(b) Infectious diseases can potentially be transmitted between game farm elk and domestic livestock. If brucellosis or tuberculosis should occur in the game farm animals, it could potentially be transmitted between different species. Domestic livestock are currently pastured on adjacent croplands and pasturelands, and there would be an opportunity for contact between domestic livestock and game farm elk. Chronic wasting disease (CWD) also has been detected in game farm elk, but the mode of transmission is unknown and there is no test for this disease in living animals. CWD has been a known wildlife disease for 30 years in Colorado and Wyoming. There is no evidence of CWD transmission to domestic livestock or humans.

The risk of disease being passed from game farm elk to domestic livestock and wildlife would be minimal if fence integrity is maintained and the stipulations and mitigation measures described in this EA are followed. Potential for disease transmission to domestic livestock and wildlife from game farm animals is also mitigated through DoI disease testing requirements. All animals to be placed on this game farm are required to be tested for tuberculosis at the time of import, purchase and/or transportation to the game farm. A test for brucellosis is also required for all game farm animals that are sold or moved within the state, and is required for all game farm animals imported into Montana. Montana is presently a tuberculosis-free and brucellosis-free state (i.e., these diseases have not been diagnosed in domestic livestock). Each game farm is required to have access to an isolation pen (quarantine facility) on the game farm or approved quarantine plan to isolate any animals that are imported or become ill. The state veterinarian can require additional testing and place herds under strict quarantine should problems arise.



- 8(c) There is a potential of domestic elk to carry or become infected with a contagious wildlife disease or parasite such as tuberculosis, and then come in contact (through-the-fence, nose-to-nose, nose-to-soil, or ingress/egress) with wild deer, elk or other wildlife. Potential for disease transmission to wildlife from game farm animals is also mitigated through DoL disease testing requirements. The release of a contagious disease in the wild could severely impact native wildlife populations since mule and white-tailed deer are present in the vicinity of the proposed game farm. It is also possible diseases and parasites carried by wild deer or elk could be introduced to the domestic elk with equally severe impacts. Ingress of wild deer or elk would likely result in the destruction of the trespassing animals. Spread of a contagious wildlife disease may directly or indirectly (depending on the nature of the disease) affect the human environment by reducing the number of wild deer and elk available for hunting or exposing hunters to diseases which are contagious to humans as well. Fence integrity must be maintained to minimize the potential for ingress and egress. Employees servicing the gas well in the game farm enclosure could potentially leave gates open if unsupervised.
- 8(d) If tuberculosis or brucellosis were to be transmitted from domestic elk and to wild elk and deer, hunters field dressing wild elk or deer would be subject to some risk of infection. Veterinarians and meat cutters working with diseased game farm animals are at risk of becoming infected with brucellosis or tuberculosis. Routine brucellosis and tuberculosis testing requirements for game farm animals offer a measure of surveillance to minimize risk to human health. Failure to comply with these requirements is grounds for license revocation. Pathogens that could be transported by Big Sandy Creek from the game farm are expected to be a minor risk for reasons mentioned above in 8(a).

Approximately 6 residences have been identified within 1 mile of the site. These residences comprise: three homes located on the bluff west of the Big Sandy Creek Valley, about 0.5-mile to the west; one home with ranch buildings located in the valley bottom, about 0.25-mile to the northwest; one home located on the east bluff of the valley, about 0.25-mile to the north; and one home about 0.75-mile to the northeast. In addition, unimproved county roads are located about 1 and 0.5 miles south and east of the game farm, and Big Sandy Creek is used as a domestic livestock wintering area. The nearby residences are within the average maximum ranges for high-powered big game rifles. The closest residence to the northwest of the proposed game farm site is located in a low lying area and is at least partly shielded by topography. The remaining residences could be exposed to an errant bullet. However, gopher and coyote hunting, and target practice at local rifle ranges occur on a year-round basis in this area. Limited hunting for upland game birds and big game also takes place on private and public land in the area. As a result, local residents are accustomed to shooting and hunting in the vicinity (Anderson, pers. commun.; Calhoun, pers. commun.; Chvilichek, pers. commun.).

NO ACTION:

Risk/health hazards would not occur from the No Action Alternative, other than those that may be associated with the existing land use, including normal shooting activities associated with the hunting season.

CUMULATIVE EFFECTS:

There is an existing 40-game farm at the Kafka ranch headquarters about one mile southeast of the proposed game farm site. There also is a proposal to build a third game farm in this immediate vicinity that would be about 870 acres in size. Cumulatively there would be 975 acres of land within a 2.5 square mile area fenced to exclude wild ungulates. Within these enclosures there could potentially be 480 adult



elk plus 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep and 10 mountain goats. The combined game farms would result in 530 animals being confined on 975 acres on a year-long basis. This large number of animals and diversity of species increases the probability of a disease problem and the risk that pathogens might leaving the game farm area via surface flow of water. There would also be increased opportunity for wild ungulates to come in contact with domestic big game species because of the large perimeter fence associated with the combine game farms and the diversity of species held in confinement.

COMMENTS:

Required Stipulations:

The following stipulations are imposed by FWP for the Big Sandy Game Farm and is designed to mitigate significant impacts identified in the EA to below the level of significance:

- (1) *Provide escort to anyone entering the game farm enclosure (e.g., gas pipeline personnel) when game farm animals are present.*

This stipulation is imposed to mitigate potential risk to wildlife posed by the proposed game farm. Risk to wildlife from contact between game farm animals and wild game is potentially significant due to the site being located in an area currently utilized by wild game.

- (2) *Shooting in the game farm enclosure using high-powered rifles must not occur in the direction of residences located within a 1-mile radius of the game farm. A guide or representative of the ranch familiar with the terrain must accompany each harvester to be sure shooting does not occur toward the nearby residences.*

This stipulation is imposed to mitigate potentially significant risk to public health and safety due to the proximity of residences to the game farm site. The requirement to have a guide with each elk harvester to assure that shooting does not occur in a direction toward the residences would significantly reduce the chances of impacting human health and safety.

Recommended Mitigation Measures:

The mitigation measures recommended in Section 5 (*Fish/Wildlife*) are applicable to this section. In addition, risk of disease epidemic or heavy parasite infections among domestic elk can be minimized by maintaining a reasonable domestic elk stocking rate in relation to the enclosure size, periodic removal of manure from concentration areas, and development of a disease immunization and parasite treatment protocol as applicable to domestic elk.

REFERENCES:

Anderson, Don. 1999. Manager, Agricultural Experiment Station, personal communication with Chris Cronin, Maxim Technologies, on March 10, 1999.

Calhoun, James. 1999. Area Resident, personal communication with Chris Cronin, Maxim Technologies, on March 10, 1999.

Chvilichcek, Steve. 1999. Area Resident, personal communication with Chris Cronin, Maxim Technologies, on March 16, 1999.



Montana Fish, Wildlife & Parks, 1996. Hunter Education, Gun Safety, Hunter Responsibility. Falcon Press, Helena and Billings, MT.

North American Hunting Club and Wildlife Forever, 1996. Third National Shooting Range Symposium, June 23-25, 1996, Orlando, Florida. Proceedings.



HUMAN ENVIRONMENT

9. <u>COMMUNITY IMPACT</u> Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Changes in historic or traditional recreational use of an area?			X		NA	9(e)
f. Changes in existing public benefits provided by affected wildlife populations and wildlife habitats (educational, cultural or historic)?		X				
g. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				

AFFECTED ENVIRONMENT:

The proposed game farm is located in Hill County, approximately 6 miles southwest of Havre. Approximately 6 residences are located within 1 mile of the site. The majority of the property surrounding the proposed game farm is private land used for agriculture (Figure 4).

PROPOSED ACTION:

9(e) Some local residents may feel that licensing the game farm operation would impact their safety due to rifle shooting on the proposed game farm. Shooting game farm elk is perceived by some people in Montana as contrary to proper ethics and the concept of "fair chase". Neighbors harboring negative feelings about the game farm operation would perceive a loss in their sense of social well-being.

NO ACTION:

The No Action Alternative would result in no change to the community.

CUMULATIVE EFFECTS:

No cumulative impacts are anticipated on communities from operation of the proposed game farm.

COMMENTS:

No mitigation measures are recommended.



HUMAN ENVIRONMENT

10. PUBLIC SERVICES & TAXES Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. A need for new or altered government services (specifically an increased regulatory role for FWP and Dept. of Livestock)?			X		NA	10(a)
b. A change in the local or state tax base and revenues?			X		NA	10(b)
c. A need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				

AFFECTED ENVIRONMENT:

The applicant currently pays taxes associated with the ranching operation. The land in which the game farm is proposed is currently classified as agricultural land which has a low appraisal value. Personal property and ad valorem taxes also are assessed based on the market value of livestock on the ranch.

PROPOSED ACTION:

10(a) Approval of the game farm would increase time and expenses spent by FWP and DoL personnel inspecting, monitoring, and responding to complaints about operation of the game farm or egress/ingress problems. Since neither FWP or DoL has the option of hiring additional employees to handle the increased workload that could potentially be created by the game farm, activities of the current staff would need to be re-prioritized to meet the increased demand created by the game farm operation.

10(b) The applicant would have to pay additional monies for ad valorem and personal property taxes on the game farm animals. Based on the current mill levy of 392.747, the applicant would pay the county an estimated (per head cost) \$13.49 for mature bull elk. The state would collect personal property taxes of \$12.00 for a mature bull elk. Using the total number of elk estimated by the applicant to be held or owned by the game farm at full capacity, the county potentially could receive approximately \$540 in ad valorem taxes and the state could obtain about \$480 in personal property taxes.

The Montana Department of Revenue (DoR) prepares a Livestock Schedule in which a market value is placed on various types of livestock, including wild game such as elk and deer. The market value is part of the calculation used to determine the county ad valorem tax.

NO ACTION:

Under the No Action Alternative, FWP and DoL would not have to inspect and monitor this game farm. The current status of tax payments for this property would remain for the No Action Alternative.



CUMULATIVE EFFECTS:

No cumulative impacts are expected on public services and taxes from the proposed game farm project.

COMMENTS:

No mitigation measures are recommended.



HUMAN ENVIRONMENT

11. <u>AESTHETICS/RECREATION</u> Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?			X		No	11(a)
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings?		X				

AFFECTED ENVIRONMENT:

The game farm site is located six miles southwest of Havre and is surrounded primarily by private land. Limited hunting of upland game birds and big game takes place on private and public land in the general area of the proposed game farm. Gopher and coyote hunting, and target practice at local rifle ranges occur on a year-round basis in this area (Anderson, pers. commun.; Calhoun, pers. commun.; Chvilichek, pers. commun.).

PROPOSED ACTION:

- 11(a) The visual character of the area may change as a result of the 8-foot high fence that has been constructed around the perimeter of the game farm. This impact would probably be most directed at persons residing in the game farm area. The impact is expected to be minor and most likely short term since fences are a common sight in the area.

NO ACTION:

No adverse impacts to aesthetics or recreation are expected under the No Action Alternative, unless the game farm fence remains in place.

CUMULATIVE EFFECTS:

No cumulative impacts are expected.

COMMENTS:

No mitigation measures are recommended.

REFERENCES:

Anderson, Don. 1999. Manager, Agricultural Experiment Station, personal communication with Chris Cronin, Maxim Technologies, on March 10, 1999.

Calhoun, James. 1999. Area Resident, personal communication with Chris Cronin, Maxim Technologies, on March 10, 1999.

Chvilichek, Steve. 1999. Area Resident, personal communication with Chris Cronin, Maxim Technologies, on March 16, 1999.



HUMAN ENVIRONMENT

12. <u>CULTURAL & HISTORICAL RESOURCES</u> Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?	X				Yes	12(a)
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				

AFFECTED ENVIRONMENT:

A file search was conducted by the State Historic Preservation Office (SHPO) for the proposed project area. Results of this search show that there are no previously recorded historic or archaeological sites on the proposed game farm (SHPO 1999); however, several documented sites exist in the immediate vicinity. The absence of cultural properties on the proposed game farm does not mean that they do not exist, but rather may reflect the lack of previous cultural resource inventory.

PROPOSED ACTION:

- 12(a) According to SHPO (1999), there is a possibility that unknown or unrecorded cultural properties may be present at the game farm site. SHPO recommends that a reconnaissance survey be conducted prior to project initiation to determine if sites exist and if they would be impacted by the Proposed Action.

NO ACTION:

No impacts to cultural resources are expected from the No Action Alternative unless other disturbances occur within the property.

CUMULATIVE EFFECTS:

No additional impacts from past, present and reasonably foreseeable activities near the proposed game farm are anticipated.

COMMENTS:

Required Stipulations: None.

Recommended Mitigation Measures:

If archeological artifacts are observed during construction of the game farm fence or from other activities, work should stop in the area and the discovery reported to the Montana Historical Society, Historic Preservation Office. If work stoppage in the area containing observed artifacts is not possible, record the location and position of each object, take photographs, and preserve the artifact(s).



REFERENCES:

Montana State Historic Preservation Office (SHPO), 1999. Letter from Philip Melton (SHPO, Helena, MT) to Daphne Digrindakis (Maxim Technologies, Inc.), dated February 25, 1999.



SUMMARY

13. SUMMARY Would the Proposed Action, considered as a whole:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?			X		Yes	13(b)
c. Potentially conflict with the substantive requirements or any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts would be proposed?	X					13(d)
e. Generate substantial debate or controversy about the nature of the impacts that would be created?			X		Yes	13(d)

PROPOSED ACTION:

13(b) There is a potential of domestic elk carrying or becoming infected with a contagious wildlife disease or parasite such as tuberculosis, chronic wasting disease, or meningeal worm and then coming in contact (through-the-fence, nose-to-nose, nose-to-soil, or ingress/egress) with wild deer, elk, or other wildlife. Release of a contagious disease in the wild could severely impact native wildlife populations. It is also possible that disease and parasites carried by wild elk could be introduced to domestic elk. Spread of a contagious wildlife disease may directly or indirectly (depending on the nature of the disease) affect the human environment by reducing the number of wild deer and elk available for hunting, or exposing hunters to diseases that are contagious to humans as well.

13(d) The nature of impacts to wildlife from elk game farms is currently under debate in Montana and other states. The following issues are of the greatest concern with respect to game farms:

- Disease transmission from game farm elk to wildlife is possible if the game farm elk are diseased and have an opportunity to come into contact with wild elk or deer.
- Hybridization of Montana's game species resulting from the ingress/egress of animals.
- Potential for wild animals to ingress into the game farm. Ingressing elk and deer are generally killed, typically by FWP wardens, to prevent potential disease transmittal. Ingressing mountain lions and black bears may be immobilized and removed.
- Theft of wild animals for financial gain on game farms.
- Ethics of shooting domestic elk, deer, or other animals in a game farm enclosure.
- Public safety from shooting operations.



Some of these issues are particularly controversial when game farms block migration routes or consume significant areas of land historically utilized by wild game. Inadequate perimeter fencing and fence monitoring by the game farm operator can also lead to ingress/egress events and nose-to-nose contact between wild game and game farm animals. Because the proposed Big Sandy Elk Game Farm area would not significantly block big game migration routes or consume a significant portion of land utilized by wild game, the controversial nature of the Proposed Action is minor.



SUMMARY EVALUATION OF SIGNIFICANCE CRITERIA

- a. **Does the Proposed Action have impacts that are individually minor, but cumulatively considerable? (A project may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)**

No. However, should a larger proposed game farm adjacent to this proposed game be licensed, there would be opportunity for cumulative impacts related to a domestic elk population exceeding 400 animals in a relatively small area.

- b. **Does the Proposed Action involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?**

Yes. An unlikely, but extremely hazardous event should it occur, would be the spread of a disease or parasite from domestic elk to wild elk or deer. The risk of this event occurring can be reduced by following the mitigation measures listed in Section 5 (*Fish/Wildlife*) and Section 8 (*Risk/Health Hazards*) of this EA.

The recent confirmation of CWD in several game farms in other states and Saskatchewan raises concerns about the potential movement of infected animals and the difficulty in diagnosing the disease in living animals. There is some possibility the disease may be transmitted through contact with land where infected animals have pastured. On November 11, 1998, the Montana Board of Livestock issued an emergency rule that prevents wild or captive cervids from being imported or transported from a geographic area or game farm where CWD is endemic or has been diagnosed. Any imported animals must have resided in the exporting herd for a minimum of 12 months immediately prior to importation, or a satisfactory and complete documented animal movement history from (birth) farm or origin must be furnished. In addition, the rule requires the animals to have undergone CWD surveillance for a period of 12 months. Surveillance of Montana game farm animals for CWD will be addressed in upcoming rules drafted by DoL.

- c. **Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented:**

No Action Alternative: The No Action Alternative would avoid many of the potential impacts listed above. This site would likely be used to for cropland and to pasture domestic livestock following the harvest.

- d. **Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency:**

This section provides an analysis of impacts to private property by proposed restrictions or stipulations in this EA as required under 75-1-201, MCA, and the Private Property Assessment Act, Chapter 462, Laws of Montana (1995). The analysis provided in this EA is conducted in accordance with implementation guidance issued by the Montana Legislative Services Division (EQC, 1996). A completed checklist designed to assist state agencies in identifying and evaluating proposed agency actions, such as imposed stipulations, that may result in the taking or damaging of private property, is included in Appendix A. Mitigation measures described in this section address both minor and significant impacts. FWP would require stipulations to mitigate all potentially significant impacts from the Proposed Action. Most potential minor impacts from the Proposed Action are addressed as mitigation measures that are strongly recommended, but not required.



REQUIRED STIPULATION #1

- (1) *Provide escort to anyone entering the game farm enclosure (e.g., gas pipeline personnel) when game farm animals are present.*

This stipulation is imposed to mitigate potential risk to wildlife posed by the proposed game farm. Risk to wildlife from contact between game farm animals and wild game is potentially significant due to the site being located in an area currently utilized by wild game.

Restriction on Private Property Use

This stipulation does not provide for any additional restrictions on private property use.

Alternatives

Do not provide escort to people entering game farm enclosure.

This alternative would not adequately address the risk to wildlife due to potential ingress/egress situations.

Benefits from Imposing the Stipulation

This stipulation is imposed to mitigate potentially significant impacts to wildlife health.

Types of Expenditures the Stipulation Would Require

The stipulation would not require any additional expenditures at the game farm since the game farm operator resides at the site.

Stipulation's Effect on Property Values None.

REQUIRED STIPULATION #2

- (2) *Shooting in the game farm enclosure using high-powered rifles must not occur in the direction of residences located within a 1-mile radius of the game farm. A guide or representative of the ranch familiar with the terrain must accompany each harvester to be sure shooting does not occur toward the nearby residences.*

Restriction on Private Property Use

This stipulation does not provide for any additional restrictions on private property use.

Alternatives

Do not restrict the direction of shooting and allow unsupervised shooting.

This alternative would not adequately address the increased risk to public health and safety due to the proximity of residences to the game farm.



Benefits from Imposing the Stipulation

This stipulation is imposed to mitigate potentially significant impacts to public health and safety from shooting operations at the proposed game farm.

Types of Expenditures the Stipulation Would Require

The stipulation would not require any additional expenditures at the game farm, assuming the guide that would accompany each shooter would be the game farm operator that would already be present at the site.

Stipulation's Effect on Property Values None.



PART III. NARRATIVE EVALUATION AND COMMENT

Wildlife use of the area and potential for through-the-fence contact with game farm animals (consider year-around use, traditional seasonal habitat use, and location of travel routes and migration corridors).

Through the fence contact: The proposed game farm is located in low density mule deer, white-tailed deer and pronghorn antelope habitat. There is also the possibility that an occasional wild elk or moose may pass through this area. Wild elk would be expected to be attracted to the game farm by domestic elk. Nose-to-nose contact is most likely to occur between wild and domestic elk. Transmission of disease or parasites may occur during nose-to-nose contact, nose-to-body contact, and by contacting vegetation and feces along the fence line. Disease transmission may occur from wild ungulates to domestic elk and deer, and from domestic elk and deer to wild ungulates. Diseases such as tuberculosis are highly contagious and can be easily transmitted between domestic and wild big game species. Tuberculosis can also be transmitted to humans and is a serious health risk.

Chronic Wasting Disease (CWD) has been documented in game farm elk in at least three states. Montana now has two suspect herds but there is no evidence that CWD is present in wild deer or elk. There is no diagnostic test for CWD in live animals and confirmation of the disease can only be made upon post mortem necropsy. However, CWD disease is believed to be confined to Cervids and has not been documented in Bovids.

Risk of disease transmission can be reduced by maintaining the integrity of the enclosure fence, by maintaining a healthy domestic big game population, and by following the above listed mitigation recommendations. If the game farm is managed properly, the risk of disease transmission from domestic elk to wild ungulates would likely be minimal.

Potential for escape of game farm animals or ingress of wildlife (consider site-specific factors that could reduce the effectiveness of perimeter fences built to standards outlined in Rule 12.6.1503A, including steepness of terrain, winter snow depths/drifts, susceptibility of fences to flood damage, etc.).

Fence integrity: Fence construction would be completed in accordance with requirements of FWP under ARM 12.6.1531. The game farm is located on level cropland. The proposed fence line crosses two slight slopes, but would not encounter steep hills or hazard trees. Overall, the site potential for fencing this pasture is excellent.

The enclosure site is located at an elevation of about 2,580 feet in a broad open area. The expected snow levels during winter would vary greatly in relation to the amount of snowfall, and wind velocity and direction associated with storms passing through this area. This area has the potential to receive considerable snowfall in single storm events and cumulatively during the winter. One to 2 feet of compacted snow on the ground can be expected in at least some winters. Snow depth in drifted areas may be even greater. Effective fence height would be reduced under these conditions of drifted snow.

Proportion (%) of the total habitat area currently used by wildlife that will be enclosed or otherwise impacted.

The fencing of 65 acres to exclude wild ungulates is not a significant loss of habitat. Overall, the proposed game farm represents less than 1 percent of the available deer and antelope habitat in this area. However, there is an existing 40-acre game farm at the Kafka ranch headquarters about one mile southeast of the proposed game farm site. There also is a proposal to build a third game farm in this



immediate vicinity that would include an area of about 870 acres. Cumulatively there would be 975 acres of land within a 2.5 square mile area fenced to exclude wild ungulates. Within these enclosures there could potentially be 480 adult elk plus 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep and 10 mountain goats. This would be a large enough area to become a significant influence on the home range use of one or more deer, create a minor barrier for passage of wild ungulates, increase risk of a catastrophic disease event, and increase the probability that a pathogen could enter Big Sandy Creek through a major runoff event.



PART IV. EA CONCLUSION

1. Based on the significance criteria evaluated in this EA, is an EIS required? YES / NO

No. The appropriate level of analysis for the Proposed Action is a mitigated EA because:

- all impacts of the Proposed Action have been accurately identified in the EA; and
- all identified significant impacts would be mitigated to minor or none.

2. Describe the level of public involvement for this project if any and, given the complexity and the seriousness of the environmental issues associated with the Proposed Action, is the level of public involvement appropriate under the circumstances?

Upon completion of the Draft EA, a notice is sent to adjoining landowners, local newspapers, and other potentially affected interests, explaining the project and asking for input during a 21-day comment period which extends from March 29, 1999 until 5 pm April 19, 1999. The Draft EA is also available to the public from the FWP office in Havre at the address and phone listed below and in the *Summary* section of this EA (p. 2), and through the State Bulletin Board System during the public comment period.

3. Duration of comment period if any: 21 days

4. Name, title, address and phone number of the Person(s) Responsible for Preparing the EA:

Fish, Wildlife and Parks

Shane Reno, FWP Region 6 Game Warden
2165 Hwy 2 East
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Al Rosgaard, FWP Region 6 Wildlife Biologist
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Maxim Technologies, Inc.

Daphne Digrindakis, Project Manager
Chris Cronin, Environmental Specialist
Doug Rogness, Hydrologist
Mike Cormier, Soil Scientist
Val Jaffe, GIS and Graphics

FaunaWest Wildlife Consultants

Craig Knowles, Wildlife Biologist



APPENDIX A

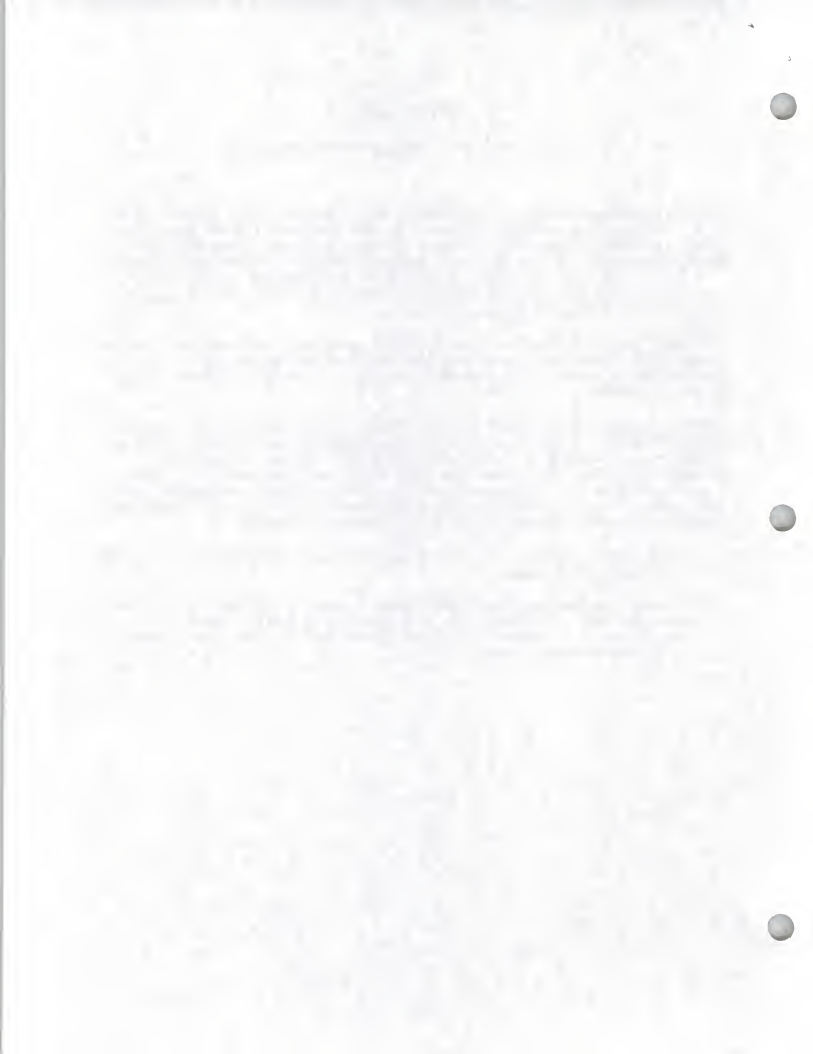
PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST

The 54th Legislature enacted the Private Property Assessment Act, Chapter 462, Laws of Montana (1995). The intent of the legislation is to establish an orderly and consistent process by which state agencies evaluate their proposed actions under the "Takings Clauses" of the United States and Montana Constitutions. The Takings Clause of the Fifth Amendment of the United States Constitution provides: "nor shall private property be taken for public use, without just compensation." Similarly, Article II, Section 29 of the Montana Constitution provides: "Private property shall not be taken or damaged for public use without just compensation...."

The Private Property Assessment Act applies to proposed agency actions pertaining to land or water management or to some other environmental matter that, if adopted and enforced without compensation, would constitute a deprivation of private property in violation of the United States or Montana Constitutions.

The Montana State Attorney General's Office has developed guidelines for use by state agency to assess the impact of a proposed agency action on private property. The assessment process includes a careful review of all issues identified in the Attorney General's guidance document (Montana Department of Justice 1997). If the use of the guidelines and checklist indicates that a proposed agency action has taking or damaging implications, the agency must prepare an impact assessment in accordance with Section 5 of the Private Property Assessment Act. For the purposes of this EA, the questions on the following checklist refer to the following required stipulation(s):

- (1) *Provide escort to anyone entering the game farm enclosure (e.g., gas pipeline personnel) when game farm animals are present.*
- (2) *Shooting in the game farm enclosure using high-powered rifles must not occur in the direction of residences located within a 1-mile radius of the game farm. A guide or representative of the ranch familiar with the terrain must accompany each harvester to be sure shooting does not occur toward the nearby residences.*



PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST

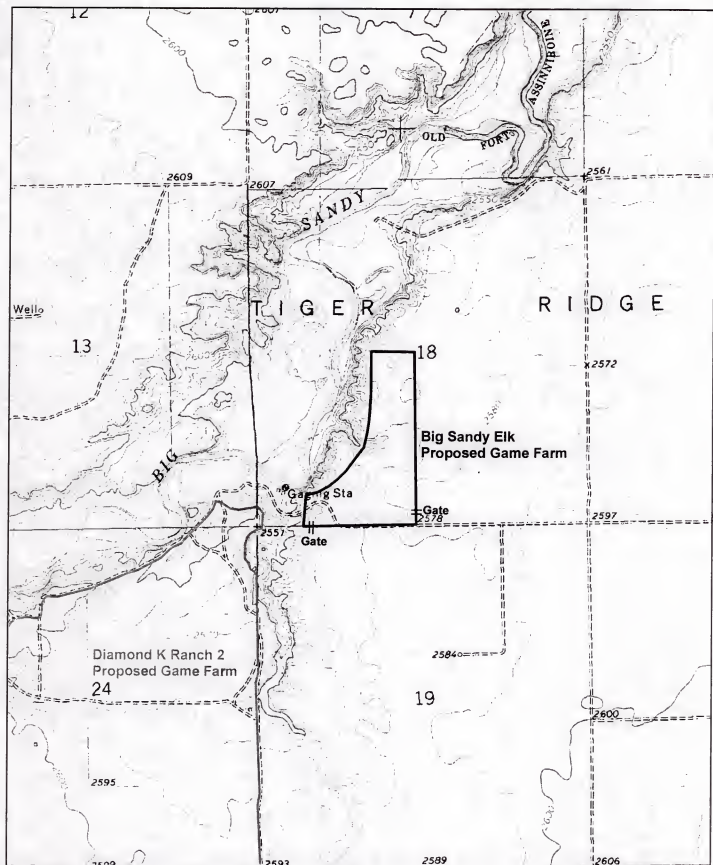
DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PRIVATE PROPERTY ASSESSMENT ACT?

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Does the action result in either a permanent or indefinite physical occupation of private property?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Does the action deprive the owner of all economically viable uses of the property?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Does the action deny a fundamental attribute of ownership?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If the answer is NO , skip questions 5a and 5b and continue with question 6.]
<input type="checkbox"/>	<input type="checkbox"/>	5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
<input type="checkbox"/>	<input type="checkbox"/>	5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Does the action have a severe impact on the value of the property?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? [If the answer is NO , do not answer questions 7a-7c.]
<input type="checkbox"/>	<input type="checkbox"/>	7a. Is the impact of government action direct, peculiar, and significant?
<input type="checkbox"/>	<input type="checkbox"/>	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?
<input type="checkbox"/>	<input type="checkbox"/>	7c. Has government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?

Taking or damaging implications exist if **YES** is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if **NO** is checked in response to questions 5a or 5b.

If taking or damaging implications exist, the agency must comply with § 5 of the Private Property Assessment Act, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff.



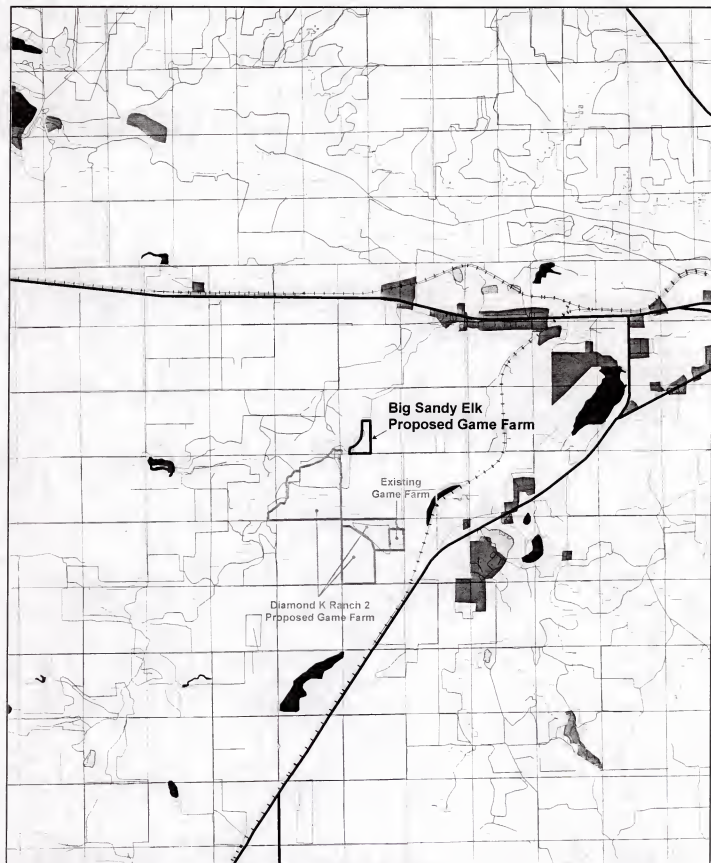


0 Feet 1500

Topographic Base Derived From
USGS 1:24,000 Scale Maps.

Site Map
Proposed Game Farm EA
Big Sandy Elk Game Farm
Hill County, Montana
FIGURE 1



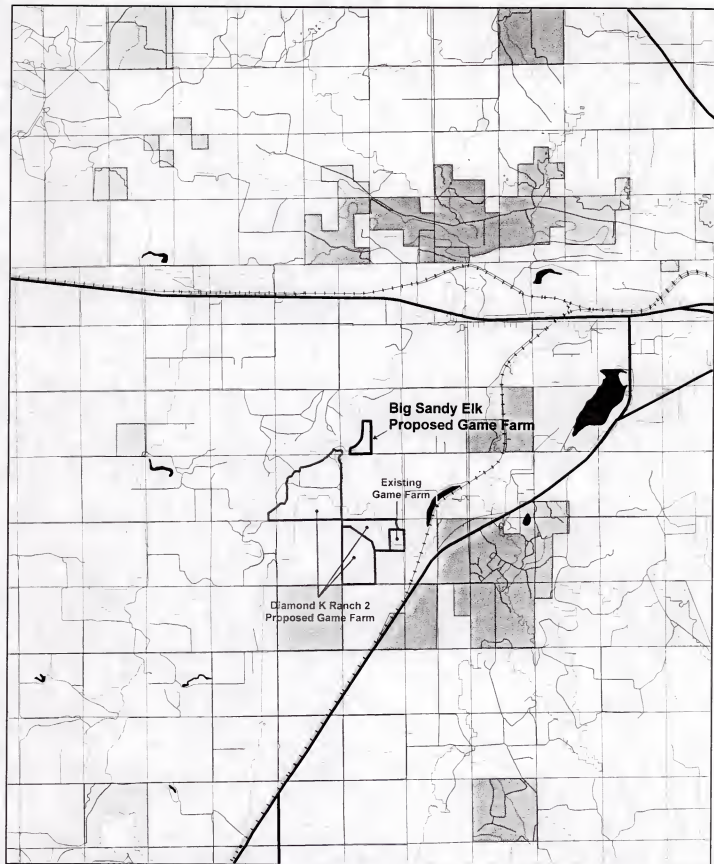


Note: Land Use Data Derived From
Montana Public Lands US Bureau Of
Land Management 1:250,000 Scale
Maps. Base Data Derived From
US Census Bureau 1:100,000 Scale
TIGER Line Files And 1:100,000 Scale
US Bureau of Land Management Maps.
Contours Derived From 90 Meter USGS
DEMs And Contour Intervals Equal 200 Feet.

- Proposed Game Farm
- Adjacent Game Farm
- Urban, Residential
- Mines/Quarries
- Wetland
- Crop/Pasture
- Grass Rangeland
- Brush Rangeland
- Mixed Rangeland

Land Use / Land Cover
Proposed Game Farm EA
Big Sandy Elk Game Farm
Hill County, Montana
FIGURE 2





0 Miles 1.5

MAXIM

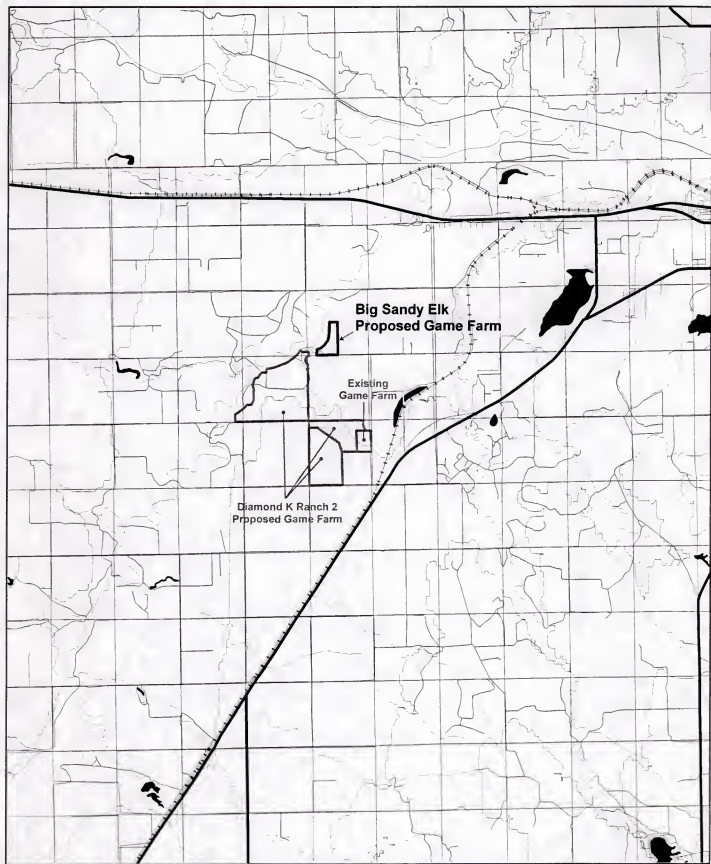
9731687.440

Note: Data Derived From Montana Fish, Wildlife And Parks 1:100,000 And 1:250,000 Scale Maps. Base Data Derived From US Census Bureau 1:100,000 Scale TIGER Line Files And 1:100,000 US Bureau of Land Management Maps. Contours Derived From 90 Meter USGS DEMs And Contour Intervals Equal 200 Feet.




- Proposed Game Farm
- Adjacent Game Farm
- Private Lands
- Bureau of Land Management
- US Fish & Wildlife
- Rocky Boy Indian Reservation
- State Lands

Land Ownership
Proposed Game Farm EA
Big Sandy Elk Game Farm
Hill County, Montana
FIGURE 3





Note: Data Derived From Montana Fish, Wildlife And Parks 1:100,000 And 1:250,000 Scale Maps. Base Data Derived From US Census Bureau 1:100,000 Scale TIGER Line Files And 1:100,000 Scale US Bureau of Land Management Maps. Contours Derived From 90 Meter USGS DEMs And Contour Intervals Equal 200 Feet.

-  Proposed Game Farm
-  Adjacent Game Farm
-  Mule Deer - General Range

**Big Game Distribution
Proposed Game Farm EA
Big Sandy Elk Game Farm
Hill County, Montana
FIGURE 4**

